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SOME OBSERVATIONS ON THE WINTER ACTIVITIES OF ANOPHELES IN SOUTHERN UNITED STATES.

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The occurrence of larvæ of *Anopheles crucians* and of *Anopheles punctipennis* during the winter in the United States has been reported by Griffitts,[1] who has recommended that antimosquito measures be directed against these overwintering larvæ. More information is needed regarding the numbers of winter larvæ, and the winter activities of both the aquatic stages and the adults of *Anopheles*, especially in the warmer sections of the United States. It has been our aim to supply a part of this information, and to seek any data which may facilitate a winter or spring attack on *Anopheles* or any seasonal antimosquito measure.

Observations have been made in three different States, and during the greater parts of three successive winters. Data of summer observations have been included for the sake of comparison.

The periods of observation and the localities and their physical character are briefly outlined as follows:

January to November, 1921, and a survey in May, 1922, in Georgia, Mitchell County and vicinity. Region undulating, but the greater part of it comparatively level. Many sink holes and cypress swamps, few springs or clear streams. Soil for the most part sandy.

January to December, 1923, in Alabama, Escambia County and vicinity. Region hilly, with many pine woods. Springs, seepages, and clear streams abound. Gum and cypress swamps numerous. Soil for the most part sandy.

January to December, 1923, in Louisiana, Acadia Parish and vicinity. A rice-growing region, level, and drained by sluggish, wooded streams. Region formerly largely prairie. Soil mostly a stiff, impervious clay.

Our work was confined largely to the zone lying between the thirtieth and thirty-second parallels; and, unless otherwise stipulated, any data mentioned in this paper will refer to this region. Some observations made farther north will be specifically mentioned. The winters in our territory are milder than those in many parts of the country in which malaria is endemic, but our territory is

[1] Griffitts, T. H. D.: Public Health Reports, vol. 33, No. 46, Nov. 15, 1918, pp. 1993-1998. (Reprint No. 491.)

representative of a very considerable portion of the United States in which malaria occurs. Malaria was relatively abundant in the Georgia region, and present, but comparatively small in amount in the Alabama region. In Acadia Parish, La., our survey is not complete; but observations in spring and early summer show that malaria is present, although indicating that it is not severe.

In Table I are given temperature and rainfall records during the years of our observations, either at our headquarters or at stations within 35 miles of them.

TABLE I.—*Temperature and precipitation records. Monthly maximum, mean and minimum temperatures and precipitation.*

THOMASVILLE, GA. (30 MILES SOUTHEAST OF CAMILLA, GA.), 1921.

Month (1921).	Temperature.			Precipitation (inches).
	Maximum.	Mean.	Minimum.	
January	74	55.6	35	2.39
February	78	56.4	37	1.27
March	87	68.2	42	3.30
April	88	66.4	40	3.09
May	96	72.2	45	4.03
June	98	80.6	62	3.51
July	95	80.0	69	6.71
August	97	81.0	61	3.56
September	95	82.2	67	1.60
October	85	67.0	44	1.68
November	83	63.8	39	3.11
December	78	57.8	36	2.14
Total				40.42

BAY MINETTE, ALA. (35 MILES SOUTHWEST OF BREWTON, ALA.), 1922.

January	75	54.8	25	7.02
February	76	60.3	25	7.01
March	80	60.0	30	7.80
April	85	68.8	42	3.64
May	91	73.7	50	8.11
June	100	79.1	64	3.12
July	98	79.0	59	1.99
August	93	80.0	67	7.50
September	94	77.8	62	1.50
October	85	67.4	43	3.19
November	85	61.3	34	1.50
December	76	59.0	33	11.55
Total		[1] 68.4		[2] 64.04

CROWLEY, LA. (LABORATORY HEADQUARTERS), 1923.

January	78	58	35	5.19
February	79	56	29	4.88
March	83	60	30	7.94
April	86	69	42	5.40
May	90	72	48	7.93
June	93	81	66	7.05
July	95	81	68	3.50
August	94	82	67	3.83
September	91	78	59	7.77
October	92	67	35	2.60
November	79	57	33	6.37
December	77	60	32	8.97
Total precipitation				71.52

[1] Average. [2] Total.

Many observations on water temperatures were made during the course of our work. The temperature of the water at the surface during January and February varied from freezing to 79° F. Temperatures taken at a depth of 6 inches were often 3° to 5° lower than those at the surface. But no ordinary thermometer can accurately give the temperature of the thin layer of water, often a mere film over weed, in which anopheline larvæ are found. Such temperatures, especially in sunlight, may be much higher than any we have recorded.

Ova and oviposition.—Ova were found on the surface of the water in January on several occasions: Georgia—in a cypress pond where *A. crucians* was breeding; Alabama—abundantly in pools where only *A. punctipennis* was found. In February gravid females were confined in cages over water in ponds. Ova were laid and were hatched in the open in periods of from five to seven days. Water surface temperatures in one experiment varied from 51° F. to 70° F.; air, 51° F. to 75° F. This experiment was successfully made twice with *A. crucians* and once with *A. punctipennis*. Ova of *A. quadrimaculatus*, laid in the laboratory, hatched in an artificial pool in the open in February.

These observations show that viable ova are found in the open in winter and will hatch there, and that gravid females will lay viable ova when confined out of doors in cages.

Larvæ and pupæ.—In our experiments many larvæ and pupæ were collected in a great variety of waters in winter. Species were in all cases determined from adults bred out in the laboratory. Wooden boxes heated by electric bulbs made very satisfactory field incubators.

Table II gives the record by months, localities, and species of *Anopheles* collected as larvæ or pupæ and bred out for determination. Collections made in other than winter months are included for the purpose of comparison. Table III gives the record of *Anopheles* caught in the adult stage.

TABLE II.—*Anopheles collected as larvæ or pupæ and bred out for determination.*[1]

Breeding place.	January.			February.			March.			April.			May.			June.			July.			August.[2]			September.[2]			October.			November.			December.		
	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.
Georgia, 1921.																																				
Cypress swamps	424	0	0	168	6	0	281	73	48	21	0	4	210	11	80	69	0	45	1	0	1	64	0	10	22	0	5	8	0	3	...	...	...	...	...	...
Open or partially open ponds	2	0	0	44	7	0	448	3	0	67	1	....	56	0	0	244	0	5	59	0	44	53	0	209	....	....	....	17	1	5	...	...	...	...	...	...
Ditches	....	....	....	....	....	....	....	....	....	....	....	....	6	11	47	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	...	...	...	...	...
Road pools	....	....	....	9	194	0	0	53	0	....	....	....	0	42	1	11	14	0	0	6	0	0	5	0	....	....	....	5	0	58	...	...	...	...	...	...
Unclassified	1	0	0	46	0	0	2	0	0	....	....	....	3	0	4	5	0	3	....	....	....	....	....	....	....	....	....	0	2	19	...	...	...	...	...	...
Total	427	0	0	267	207	0	731	129	48	88	1	4	275	64	132	329	14	53	60	6	45	117	5	219	22	0	5	30	3	85	...	...	...	...	...	...
Alabama, 1922.																																				
Ponds and large borrow pits	1,076	71	1	294	363	1	458	269	14	406	74	13	264	7	10	57	17	2	24	0	139	84	6	48	5	0	25	47	29	4	0	3	0	2	0	0
Sloughs, mostly grassy	43	133	0	0	0	0	0	0	0	10	2	0	....	....	....	....	....	....	0	15	0	0	1	2	....	....	12	3	0	2	7	0	...	...	...	...
Pools	14	62	0	1	23	0	55	329	1	100	20	0	....	....	....	....	....	....	4	7	0	1	0	2	0	2	0	12	157	16	0	11	0	2	10	0
Ditches	9	54	0	4	2	0	....	....	....	21	0	0	1	10	0	0	3	1	0	1	0	....	....	....	25	0	2	20	51	1	...	...	...	0	1	0
Springs	0	2	0	....	....	....	....	....	....	....	....	....	....	....	....	0	74	0	11	16	4	3	0	0	6	5	0	1	10	0	...	...	...	0	0	0
Total	1,142	322	1	299	388	1	513	598	15	537	96	13	265	17	10	57	94	3	39	39	143	88	7	52	36	7	27	92	250	21	2	21	0	4	11	0
Louisiana, 1923.																																				
Wooded bayous	46	0	27	38	0	53	34	0	54	7	0	55	3	0	41	30	0	86	10	0	16	37	0	10	213	0	21	133	5	164	89	2	62	1	9	0
Open ponds and borrow pits	7	0	0	....	....	....	76	0	1	7	0	0	42	0	0	0	0	3	0	0	0	....	....	....	41	0	0	....	....	....	77	1	227	....	....	....
Pools	103	1	0	56	0	2	118	0	8	89	12	1	27	1	0	1	0	0	20	0	0	....	....	....	....	....	....	10	21	1	0	0	4	....	....	....
Rice fields	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	22	0	3	38	0	50	192	0	32	226	0	78	....	....	....	....	....	....	....	....	....
Total	156	1	27	94	0	55	228	0	63	103	12	56	72	1	41	53	0	92	68	0	66	229	0	42	480	0	99	143	26	165	166	3	293	1	9	0

[1] The small letters "c," "p," and "q" at the head of the columns denote *Anopheles crucians*, *Anopheles punctipennis*, and *Anopheles quadrimaculatus*, respectively.

[2] In August, 1921, at least 100 *A. quadrimaculatus* collected in a Georgia ditch were bred out and used in other experiments; in September at least 1,000 of the same species were collected from the same locality.

TABLE III.—*Anopheles caught in the adult stage.*

Locality.	January.			February.			March.			April.			May.			June.			July.			August.			September.			October.			November.			December.		
	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.	c.	p.	q.
Stuttgart, Ark., 1920																						152	3	15,815	401	1	15,695	259	3	407						
Camilla, Ga., 1921	14	23	10	578	25	17	453	10	4	2	0	0	228	10	44	180	14	99	96	12	216	10	0	24	2	0	0									
Brewton, Ala., 1922	0	5	0	1	5	1	0	2	0	102	125	25	64	57	80	290	22	88	505	1	558	31	0	105	5	4	8							20	15	0
Crowley, La., 1923	8	0	58	24	0	72	2	0	3	57	0	49	375	0	252	1,025	0	1,446	742	0	1,745	515	0	1,490	153	0	277	0	6	244	9	7	69			

Noteworthy is the large number of anopheline larvæ and pupæ which could be collected during the winter. On one occasion 237 pupæ were collected by two persons within about two hours. These were mostly *A. crucians* collected from a pond in Alabama in January. In another south Alabama locality, in February, 302 pupæ, mostly of *A. punctipennis*, were collected in about two collecting hours. In both instances many large larvæ were collected at the same time. No such concentration of pupæ and large larvæ was found in that region during the summer.

It was our plan to keep under observation certain breeding places, examining these month after month; but floods, droughts, drainage, and fouling of water through decaying vegetation often checked breeding and forced us to seek new collecting grounds; therefore the months are not strictly comparable. Further, ponds well stocked with larvæ or pupæ during the winter would often show a marked falling off in numbers in early spring, without any visible change in the water to account for the diminution. In some cases records were kept of the number of pupæ collected per person per hour, in order to get a rough quantitative measure of abundance. A certain fishpond the water of which, partially supplied by artesian wells, remained very constant in amount and quality, gave the following ratios of abundance of pupæ: January, 29; February, 14; March, 10; April, about 5; June, 3. Larvæ of various sizes were in about the same proportion. In other cases the diminution as spring advanced was even more abrupt. This diminution was not constant in every breeding place, but occurred in so many breeding places that it seemed to be associated with change in season and not to be explained by chance variation in numbers. Possibly greater spring activity of natural enemies had something to do with it, or, more likely, as the water grew warmer the development of larvæ and the emergence of adults outbalanced the deposition of new ova. Adults were, as a rule, not abundant in winter and early spring. Some ponds, however, which showed abundant *Anopheles* larvæ and pupæ in winter, never had large numbers in summer, even where adults were plentiful.

In spite of some irregularities in the rate of collection, the records of Table II represent, in a general way, the seasonal incidence of larvæ and pupæ of the commoner species of *Anopheles*. Table III, which gives by region, month, and species, the number of *Anopheles* caught in the imago stage, should be compared. Neither Table II nor Table III attempts to give the relative numbers of *Anopheles* occurring at different seasons. Only sample summer collections are included in order to compare incidence of species.

A. crucians was the dominant winter species in all three regions, and continued to occur abundantly throughout the whole season. We found pupæ of this species in northeast Mississippi, near Scott,

in January. Griffitts (loc. cit.) found full-grown larvæ of this species at Alexandria, La., in December.

Larvæ and pupæ of *A. punctipennis* were also abundant in winter. This species tended to diminish in summer, partly through the drying up of certain breeding places, and partly through its disappearance from others; and the total number of this species, relative to the other species, if not absolutely, diminished in summer, even in the hilly regions of southern Alabama, and, more strikingly, in the level regions of Louisiana and Georgia. We also found *A. punctipennis* at Burlington, Kans., in December. Griffitts (loc. cit.) found larvæ of this species in November at Yorktown, Va., and in April at Newport News, Va., and he reports their collection by Carter and Le Prince in February at Salkehatchie, S. C.

The seasonal incidence of *A. quadrimaculatus* is of especial interest because this species is probably the chief carrier of malaria in the southern United States. Various observers report that in north and central Europe the related species, *A. maculipennis*, winters in the imago stage exclusively; Herms [2] states that *A. occidentalis* (*A. maculipennis*) of California, does not breed during the winter there.

We found larvæ and pupæ of *A. quadrimaculatus* sparingly during January and February in Alabama. In Georgia, pupæ and large larvæ were found on the 7th of March in fair numbers in a cypress swamp. Later in March, numbers became more abundant in both States. In southern Louisiana we found but few larvæ and pupæ during January and February except in a certain bayou, where larvæ could be found in considerable numbers both in a wooded portion covered by water hyacinth (*Piaropus crassipes*) and in an open portion covered by various water weeds and algæ. Freezing weather in February made it sufficiently cold over the bayou to kill leaves of the water hyacinth, but not cold enough to form ice. The species collected in this locality during 1923 are shown in Table IV.

TABLE IV.—*Incidence of larvæ and pupæ of anopheles collected in Mermentau Bayou, La.*

Month.	Species bred out.		Abundance both species—pupæ per man-collecting hour.
	A. quadrimaculatus.	*A. crucians.*	
January	23	38	(1)
February	56	43	8.5
March	54	34	10.0
April	2	5	2.2
May	94	5	3.5
June	116	24	5.0
July	11	4	3.0

[1] No data

[2] Herms, W. B.; Jour. Econ. Entom., vol. 14, No. 5, Oct. 1921, p. 414.

We also found *A. quadrimaculatus* in January, 1923, in southern Arkansas, near Lake Village. Mr. W. A. Davis, special expert, United States Public Health Service, reported to us the collection of larvæ of this species from under ice in January, 1921, at Wilmington, N. C. The larvæ were bred out in the laboratory. Mr. Davis reported that a certain locality seemed to be favored by this species in winter.

These observations show that *A. quadrimaculatus* is not only found during the winter in the larval or pupal stage, but also may be found in sufficient numbers to supplement the overwintering imagoes in furnishing the spring supply of this species.

In midsummer, *A. quadrimaculatus*, in both the larval and imago stage, became the dominant species in the Georgia and Louisiana regions. In southern Alabama *A. crucians* was nearly as plentiful throughout the summer.

The habits of anopheline larvæ were essentially the same in winter as in summer, except that they became more sluggish on the colder days. Surface feeding continued, and there was no evidence that they remained during very long periods in a dormant condition at the bottom of the water.

That the development of the aquatic stages of *Anopheles* continues during the winter was demonstrated in several ways. Hatching of ova has already been mentioned. Very young larvæ were often found during the winter. Larvæ that were collected and placed in baskets in the open, pupated, and imagoes emerged. Males were observed during the winter.

More convincing evidence was afforded by certain determinations of the growth rate of anopheline larvæ during the winter. These determinations were made in two ways: (1) Observation of the time required, in the open and under natural conditions, to repopulate with larvæ a pool in which larvæ had been destroyed by Paris green; (2) observation of the development of adults from ova placed in artificial pools.

Paris green was employed as a larvicide in the growth-rate experiments because it does not destroy ova, and quickly disappears, leaving the water free for the development of new larvæ. Places were chosen for these experiments where larvæ were already present, so that natural conditions for growth were insured. No ova were placed in the pools. Special precautions were taken in order to prevent error through mistaking for new larvæ any that might have survived treatment or that might have been washed in from other places. Only small pools readily "sterilized" and safe from communication with other water were used. Repeated dippings were made some hours after treatment, and on subsequent days, in order to insure absence of surviving larvæ. Growth of new broods was observed from the earliest stages on.

A protocol of one experiment follows:

Area of pool, "Hammac Road No. 1," about 160 square feet; depth, about 6 inches. February 3, 1922, ten sample dips gave one anopheline pupa and 97 larvæ. Anopheline ova were found on the surface of the pool. Temperature of the water at the surface at 9.45 a. m., 65° F.; at a depth of about 6 inches, 60° F. Treated with about 4 c. c. of Paris green mixed with road dust. February 3, four and one-half hours later, not one living larva could be found on repeated dippings. A cold period intervened, and no larvæ could be found until February 9, when two, apparently just hatched, were found. February 13, five or six larvæ, 1.5 to 2 mm. long, were found; February 21, many about half grown. February 28, several nearly full-grown larvæ were found and brought to the laboratory. These, kept in an unheated room, pupated on the night of collection, and adults emerged March 3; all *A. punctipennis*. March 5 and 6, pupæ were found in the pool. Imagoes emerged from these when kept in an unheated room in the laboratory. March 17, 93 pupæ were collected. All proved to be *A. punctipennis*. So the emergence of imagoes occurred about 32 days after treatment of the pool and about 26 days after the first finding of newly hatched larvæ. The pool was partly exposed to the sun, and water surface temperatures taken from time to time varied from 61° F. to 79° F. As a routine in experiments of this kind, no anophelines were removed from the test pool until they had reached the pupal stage. They were then kept under observation at about the same temperature as that of the pool until imagoes emerged.

A series of four such experiments begun on or before February 10 gave periods varying from 27 to 36 days as the time required for the development of imagoes from ova remaining in a pool after treatment with Paris green, or deposited subsequently. All were pools more or less exposed to the sun, and the species was *A. punctipennis*, in all cases. Two tests begun in March and two in October gave 19 days for the same species. For *A. crucians*, 45 days of February and March were required for full development, in a deeply shaded pool; a test begun February 23 gave 32 days, and one in April 26 days, the last in a partly shaded pool.

In the second type of experiment no larvicide was used, and ova were placed in artificial pools. These experiments were done in Louisiana in 1923. A protocol of one experiment follows:

February 8, several hundred ova were placed in a small pool. The ova had been laid during the previous 24 hours by overwintering *A. quadrimaculatus* confined in cages in the laboratory. March 5, several half-grown larvæ were found. March 15, several pupæ. These were placed in a container in the open, and one female *A. quadrimaculatus* emerged on March 15. Time required for development from ovum to imago, 36 days. In a similar experiment with the same species, 43 days, February 7 to March 22, were required for the full cycle. Here freezing weather intervened a short time before pupation. *A. crucians* required 54 days, February 13 to April 8, development being much delayed by the occurrence of cold weather.

The evidence seems conclusive that the development of all of the three common species of *Anopheles* continues during the winter and early spring in this latitude. The period of time required for a full cycle naturally varies greatly according to the weather.

Some data obtained by us on the rate of growth of *Anopheles* during late spring and summer may be compared:

Method No. 1.—Larvæ originally present killed by arsenic. Mitchell County, Ga., 1921. August 10, breeding area treated. August 11, no larvæ, large or small, could be found in treated area. August 13, newly hatched larvæ found. August 16, many larvæ, largest about one-fourth grown. August 18, many larvæ, largest nearly full-grown. August 19, five pupæ. From these, August 21, two female and one male *A. quadrimaculatus* emerged. Therefore about 12 days elapsed between the time of treatment of the breeding place and the emergence of imagoes. Water-surface temperatures taken between approximately 11 a. m. and 3 p. m. varied from 90° F. to 104° F. At 5.45 a. m., about sunrise, the surface temperature was 70° F.

Method No. 2.—No larvicide used. Ova were placed in artificial pools or in baskets placed in natural ponds or pools. Acadia Parish, La., 1923. June 17, many *A. quadrimaculatus* larvæ, just hatched from ova laid June 16, placed in artificial pool. July 2, three pupæ found. These were placed in a container in the open, and imagoes emerged July 3. Time required for development, 17 days.

June 28, larvæ just hatched from eggs laid June 27, placed in basket in shallow water in a rice field. July 9, one full-grown larva found in basket. July 11, one pupa found, which produced an adult July 13. Time of development, 14 days from egg to imago.

June 27, larvæ of *A. quadrimaculatus* just hatched from eggs laid during the previous 24 hours placed in basket in reservoir fed by deep well. July 11, one full-grown larva and many smaller larvæ found. July 13, one pupa found. July 15, imago emerged from pupa. Time of development, from egg to imago, 18 days. In this case the temperatures were generally lower than in the other experiments, as the reservoir was constantly being emptied and refilled with water averaging 75° F.

SEASONAL INCIDENCE OF SPECIES IN DIFFERENT BREEDING PLACES.

Table II shows, in a general way, the type of breeding place in which larvæ and pupæ were found. In a period of over three years repeated collections were made in at least 50 different breeding places, and occasional collections in many more, so that a fairly wide range was covered. The larger our experience the more difficult it became to generalize regarding choice of breeding places by anopheline species so adaptive as ours. Larger bodies of water, either partly shaded or exposed to the sun, gave the largest winter yields

of *A. crucians;* and these places usually continued to produce that species during the summer. *A. punctipennis* was sometimes found with *A. crucians* in these places in winter and early spring, and *A. quadrimaculatus* was a frequent associate in summer. In some ponds, even swampy ones, only *A. crucians* could be found in summer. Collections of larvæ and pupæ in the rice fields of Arkansas and the incidence of adults caught in that region (see Table III) indicate that *A. crucians* was somewhat in abeyance there during August and September, but began to gain in October. In Louisiana, larvæ of this species were plentiful in the rice fields, and adults numerous in their neighborhood as late as July. There seems to be no type of breeding place, large or small, at all suitable for *Anopheles* in which *A. crucians* could not be found at one time or another.

The preferred breeding places of *A. punctipennis* in winter were weedy ponds, springs, and streams with comparatively clean water, and certain shallow pools in or near woods rain filled and comparatively free from vegetation. Some breeding places were shaded, and some were directly exposed to the sun. In summer they usually disappeared from the ponds, but remained in the springs and similar clean water, where they were often associated with other species. The shallow rain pools often dried up in late spring, but *A. punctipennis* could sometimes be found in summer in those which were comparatively free from decaying vegetation. The more vegetation in such places the more likely one was to find *A. crucians* or *A. quadrimaculatus.* Summer not only brings a rise in the temperature of water, but often a change in its composition also, especially with regard to the amount of products of vegetable decomposition. Some of our observations indicate that *A. punctipennis* is more sensitive to such products than are the other species. However, they may tolerate water fouled by animal products. We found them almost the sole species in a sluggish stream much polluted by refuse from a slaughterhouse (Alabama, July), and again in a muddy "hog wallow" (Georgia, July).

A. quadrimaculatus was usually found in winter and early spring in weedy ponds, open or wooded. Its occurrence in a Louisiana bayou has been mentioned. Our observations indicate that the larvæ of this species may have certain preferred breeding places for winter and early spring—places which might be overlooked except in a careful survey. In connection with the spring appearance of *A. quadrimaculatus* may be mentioned its occurrence in May, 1922, in the effluent of a certain septic tank near Camilla, Ga. A survey was made of that region during May, and *A. quadrimaculatus* was found only in that effluent, where it occurred in considerable numbers associated with *A. crucians* and *A. punctipennis.* This water, somewhat purified by passage through two ponds and a long ditch, had yielded *A. quadrimaculatus* in large numbers during the previous

year. It was the only species found there in the course of many collections made during August and September. In October, larvæ of *A. punctipennis* and of *A. crucians* also appeared there.

In summer *A. quadrimaculatus* could be found almost anywhere, often associated with *A. crucians* and sometimes with *A. punctipennis*. It was occasionally found in water immediately below springs or leaky hydrants, and in rain barrels. The greater numbers occurred in waters of a more weedy, swampy character. The rice fields of Arkansas (Stuttgart, 1921) in midsummer appeared to yield this species almost exclusively; in Louisiana (1923) rice fields produced about 57.2 per cent of *A. quadrimaculatus* and 42.8 per cent of *A. crucians* as late as July, but the total for the year showed 74.5 per cent *A. crucians* and 25.5 per cent *A. quadrimaculatus*.

In general, the character of the breeding place tended with the advance of summer to become less suitable for *A. punctipennis* and more favorable for *A. quadrimaculatus*. For *A. crucians* it tended to remain more nearly a constant.

The nature of the water surface protection sought by anopheline larvæ in winter did not materially differ from that in which they were found in summer, and seemed largely a matter of source of food and of protection against fish and other natural enemies rather than a protection against cold. Larvæ were found in surface vegetation of all sorts, and even among floating cinders. Where no fish were present they occurred in waters with a practically clean surface. *Gambusia* minnows are active enemies of larvæ in winter, as was shown by some observations made in south Georgia in January. A dipper containing larvæ was slowly sunk in water until fish could pass over the rim. There they could be seen against the white background, eagerly pursuing and catching larvæ. The surface temperature of the water was 62° F.

NUMBERS, ACTIVITIES, AND DISTRIBUTION OF IMAGOES IN WINTER.

The numbers of adults in winter were usually low in proportion to the numbers of larvæ and pupæ found, the reverse of the condition one usually finds in regions farther north. Winter conditions in our latitude may have been better suited for the development of larvæ than for the survival of newly emerged adults. In some cases, however, large numbers of adults were taken in winter. During February 720 adults, mostly *A. crucians*, were caught, the larger part of them by means of a pig-baited trap placed near a cypress swamp containing numerous larvæ and pupæ (Georgia, 1921). As a rule, winter catches by traps or otherwise were small, even near good breeding places. Male *A. crucians* were not uncommon in January and February. A male *A. punctipennis* was taken in February. The earliest appearance of Male *A. quadrimaculatus* noted was on

March 15 (Georgia). The absence of males in winter is generally considered good evidence against breeding of *Anopheles* at that season. Such evidence is satisfactory only when a search over a wide range and through a variety of resting places fails to reveal males. Our pig trap in Georgia caught practically only females during February, but males were frequently found in the neighboring woods during January and February. In Louisiana a certain bayou yielded many *A. quadrimaculatus* pupæ in January and February, and our experiments showed clearly that *A. quadrimaculatus* could develop from egg to imago in the open during that season; but no males were found during winter in the collections of imagoes made in barns near the bayou.

Among the winter activities of *Anopheles*, biting has often been noted. On warm days, even well into the evening, adults leave their shelters and seek blood, a phenomenon common in our latitude and in regions much farther north. (*Vide* observations by Mayne,[3] Mississippi; Van Dine,[4] northern Louisiana; Metz,[5] Florida.) The more or less sudden appearance in winter of large numbers of adult anophelines is sometimes noted in the southern United States. Mayne (*loc. cit.*) has made such an observation (*A. quadrimaculatus*, February, 1916, at Scott, Miss.). In December, 1921, a sudden influx of *A. crucians* was noted at Gulfport, Miss., on a warm day following a spell of cold weather. Another influx of great intensity but of short duration took place there in February, 1922, also after a short period of damp, cold weather. Inspections made in the neighborhood showed insufficient breeding places in the vicinity to account for the large numbers of imagoes observed. Further investigation disclosed the fact that *A. crucians* was breeding in large numbers on Ship Island, 12 miles offshore, and that immense numbers of the adults were present on that island, eager for blood, and biting viciously in broad daylight. Similar conditions were observed on Cat Island, 3 miles to the westward. In April, 1923, numbers of *A. crucians* suddenly increased in the vicinity of Crowley, La.; but, since the numbers continued high, the influx of adults was probably due simply to a sudden increase in production.

South of the thirty-second parallel true hibernation of *Anopheles* does not seem to occur. Observations made in other regions seem to show that partial hibernation may take place in the adult stage. Mayne (*loc. cit.*) found large numbers of *A. quadrimaculatus* imagoes on February 11 near Scott, Miss., when they were emerging from the depths of a wood and biting horses. "A careful and conscien-

[3] Mayne, Bruce (M. Bruin Mitzmain): Pub. Health Bull. No. 84, United States Public Health Service.
[4] Van Dine, D. L.: So. Med. Journ., Vol. XIV, No. 4, April, 1921, pp. 289–294.
[5] Metz, C. W.: Pub. Health Rep., Vol. 35, No. 34, Aug. 20, 1920, pp. 1974–1977. (Reprint No. 716.)

tious effort was made to locate empty puparia, to account for the emergence of such a swarm of mosquitoes. Absence of these or other young forms was invariably the rule." Freeborn states that *Anopheles occidentalis* (*A. maculipennis*) overwinters as an adult female, hibernation beginning about November 15 and terminating in February, when the adult females leave their winter quarters and fly in search of food. They lay their eggs and rapidly disappear thereafter, so that practically all are gone by the end of February.

Freeborn also notes a difference in the capacity for overwintering, and among mid-season females, for egg-laying. Our observations confirm his, at least as regards *A. quadrimaculatus* in Louisiana, for in no case could an overwintering female be induced to lay a second batch of eggs in captivity, all dying at once or very shortly after laying one batch. The numbers of eggs in such batches varied from 17 to 196. Freeborn noted the same phenomenon with *A. occidentalis,* for he could not obtain a second batch of eggs from overwintering females, although one mid-season female *A. occidentalis* laid three batches containing a total of 491 eggs. Some observations of the mid-season laying capacity of *A. quadrimaculatus* were made by us in Stuttgart, Ark., and showed eight separate layings over a period of almost a month, varying in number from 63 to 112, and totaling 742, all fertile but the last batch. An *A. crucians* female laid three batches of eggs in six days, all fertile, totaling 278, after being isolated from a number of *A. crucians* females. She may have laid more than this number before being separated from the others. In all cases, blood meals were taken between layings.

According to Freeborn, *A. occidentalis* in California exhibits definite seasonal periodicity, the species surviving the winter in the adult stage. Eggs of overwintering females are undeveloped; they are laid in early spring, and the overwintering females rapidly disappear as the larvæ of the first brood appear.

In our territory it is possible that some individuals may hibernate, but it can not be said that any of the common species of *Anopheles,* taken as a whole, show any such definite seasonal periodicity. Females with developed ova are found in midwinter, and they will deposit ova in the open. Viable ova, larvæ in all stages, and pupæ are plentiful in January. The effect of winter is merely to slow up vital processes, not to suspend them. Development of *A. quadrimaculatus* continues during the winter; but judging from the relative scarcity of larvæ and of newly emerged adults, this species appears to be the one most susceptible to cold.

Distribution of *Anopheles* in winter was widespread; one rarely found large numbers in any one place. Hollow trees and stumps and the under side of bridges and houses seemed to be the preferred resting places. Domestic animals in our latitude often range free

in winter, night and day, and stables did not harbor *Anopheles* in any large numbers. Mosquito traps, consisting of a screened frame raised above the ground sufficiently to admit mosquitoes, and baited with one or more live pigs, were employed in various places in Georgia and Alabama during the winter. In only one locality, the cypress swamp previously referred to, were large numbers taken in such traps; these numbers were probably only a small proportion of the adults present in the vicinity, judging by the numbers seen free in the woods. In another wood, where breeding was sparse, fewer entered the trap than were found in stumps and on trees in the immediate neighborhood. Traps consisting simply of a box lined with black cloth caught relatively few mosquitoes in winter.

THE POSSIBILITIES OF A WINTER ATTACK ON ANOPHELES.

An attack on the widely dispersed adult *Anopheles* in winter is little promising until some means is devised of attracting large numbers to places where they could be destroyed. Pig-baited traps do not offer much hope of success. Any campaign which aims to diminish the numbers of overwintering *Anopheles* must include antilarval measures as well, at all events in regions where larvæ are as abundant as we found them in our zone. Such measures must also take into consideration winter development of *Anopheles*, a factor varying greatly with the character of the winter. It is possible that, in certain localities, the destruction of all possible numbers of adults and larvæ of *A. quadrimaculatus* in winter might delay the production of large numbers of that species in spring. However, season does not apparently offer a strategic point of attack against *A. quadrimaculatus*, or any of our species, such as is described for *A. occidentalis* in California.

SUMMARY.

In the southern portions of Georgia, Alabama, and Louisiana larvæ of *Anopheles* may be found in large numbers in winter. Development of ova, larvæ, and pupæ continues in winter as in summer, but more slowly. Winter-breeding *Anopheles* may supplement overwintering adults in the production of the spring supply, and any winter attack on *Anopheles* must be directed against larvæ as well as against adults. Aquatic stages of all of the three common species of *Anopheles* occur in winter; those of *A. quadrimaculatus* are the least plentiful. The activities of adults continue in the winter, and there is no true hibernation of any species. Adults are widely dispersed, and no means of destroying them in winter is likely to succeed unless some efficient means is devised of attracting them to places where they can be successfully attacked.

The authors are indebted to the United States Weather Bureau stations at Montgomery, Ala., and Atlanta, Ga., for the weather data for Bay Minette, Ala., and Thomasville, Ga., respectively, and to Mr. J. M. Jenkins, superintendent of the Rice Experiment Station, Crowley, La., for the weather data for that station.

ANNUAL REPORTS OF MARINE HOSPITALS, FISCAL YEAR 1923.

It has not been possible to publish in full in the annual report of the Public Health Service complete reports of the hospitals as submitted by the medical officers in charge of the different stations. The report of Marine Hospital No. 21, a typical marine hospital, and that of Marine Hospital No. 9, a hospital used exclusively for tuberculosis, have been selected for publication in Public Health Reports, as being more or less typical of the hospitals operated by the Public Health Service. It is regretted that other equally interesting reports can not be published in full.

Annual Report of United States Marine Hospital No. 21, Stapleton, N. Y.

By C. H. LAVINDER, Surgeon in Charge.

Capacity, classes of cases, admissions.—The bed capacity of this hospital has not changed during the year. It is given as 288, which, of course, as in all hospitals, is within narrow limitations, an arbitrary number, and could be reduced or increased as occasion might demand. It might be said generally that the hospital is overcrowded. By reason of its construction, however, ventilation is unusually good. All wards have windows on both sides, and some on three sides. Slight overcrowding, therefore, is a factor of no great significance.

The hospital is a general hospital which receives all classes of cases. In general terms it may be said that the beds at the time of this report are distributed about as follows: General surgical cases, about 85 beds; genito-urinary and venereal cases, about 55 beds; pulmonary tuberculosis cases, about 25 beds; isolation and special cases, about 20 beds; general medical cases, about 100 beds; and private rooms and female cases, about 5 beds. These figures are necessarily only approximate, since changes constantly occur, owing to the daily demands of the hospital. The only change of consequence in this distribution is the discontinuance of a small neurological and mental service consisting of about 8 or 10 beds. These patients were largely veterans, and the service was discontinued by reason of the opening of hospital No. 81 of the Veterans' Bureau, to which they were transferred.

The bed capacity for female patients is totally inadequate. In addition to an occasional female beneficiary we are also called upon to take care of female employees, not only for this hospital but for other stations of the Service in this city; and it is a matter of regret that we can not devote more space to this purpose. This is a point of some significance for consideration in the future construction and arrangement of marine hospitals.

The character of beneficiaries received during the year has not varied materially except that the number of veterans has declined. By far the largest number of our cases continue to be seamen of the American Merchant Marine, which form, as a rule, about 80 per cent of the total cases in the hospital.

The hospital continues to do considerable work for the Employees' Compensation Commission. The remainder of the cases is made up of officers and seamen of the Coast Guard Service and other beneficiaries.

The admissions to the hospital during the past year have been 2,467, which shows an increase of 20.6 per cent over the total admissions of the previous year. The total number of hospital days for this fiscal year was 91,223 as compared with 84,603 for the previous fiscal year, indicating a relatively shorter stay in the hospital for patients. It is a matter of some interest to look back over the admissions to this hospital during the past years. Going back to 1900, it is observed that the admission rate to this hospital approximated about 1,000 annually up to 1914, when it began to increase. From that year during the period of the war the increase was enormous, reaching its apex in 1919, when there was admitted a total of nearly 4,500 cases. Obviously this number of cases could not have been treated in this hospital. A great many of them were treated in outside institutions under contract, and credited to this hospital. The rate declined to a little over 1,800 in 1922, and in 1923 it increased to a little above 2,000. It may be said, therefore, with fairness, that there are admitted annually to this hospital at the time of this report about 2,500 cases, which represents practically the full capacity of the hospital. It is of interest to note also that within the last two or three years, hospital No. 70, in Manhattan, has been opened, and the hospital at Ellis Island has been made available to this Service. These two hospitals have shown an admission rate of about 1,000 a year, which admissions, under old conditions, would have fallen upon this institution. These figures seem to show undoubtedly a steady rate of growth in the hospital activities of the Service at this port.

Services.—This hospital conducts an active service, largely with acute cases. It has, however, always in its wards about 25 cases of chronic pulmonary tuberculosis. Favorable cases are transferred

elsewhere, but advanced, hopeless cases are held in this institution indefinitely. Outside of these cases the number of chronics in our wards is comparatively small, and every effort is made to retain our beds for acute cases.

The presence of prolonged cases of pulmonary tuberculosis greatly increases the average stay of patients in hospital. The average stay for the year was 36.5 days, which would be high but for the tuberculosis ward. It is almost impossible to figure from our data the average stay in hospital exclusive of these prolonged cases, but it is estimated at 15 to 20 days.

The major professional services of the hospital include general surgery, general medicine, genito-urinary and venereal disease, eye, ear, nose and throat, laboratories, X-ray, physiotherapy, and dentistry. Pulmonary tuberculosis and mental and nervous cases are included in the general medical service.

The surgical service is quite active, reporting during the fiscal year a total of 993 operations exclusive of 2,750 arsphenamine injections. As is indicated by these figures the genito-urinary and venereal-disease service is also a very active part of the hospital. During the year 3,809 X-ray exposures were made, and the laboratories made 8,876 examinations. The physiotherapy department gave 23,396 treatments. The dental service is only an emergency service, and until arrangements can be completed for the installation of apparatus it must continue so.

It is worthy of comment that some of the major professional services, notably the physiotherapy, dental, X-ray, and genito-urinary, operated under considerable difficulties owing to lack of space and consequent inability to install suitable, satisfactory, and adequate apparatus.

One change of consequence during the year occurred in our administrative organization by the conversion of the hospital service and library activities formerly carried on by the American Red Cross to strictly official activities. The hospital service work and the library are administered more or less as a combined activity. During the year the hospital service department handled 1,465 cases, and the library reports a circulation of 8,225 books. There is an excellent patients' library, due largely to the generosity of the American Library Association and the American Red Cross. This department, on the whole, is a very important department in the hospital and serves an admirable purpose in a great many ways. It is a matter of gratification that a large number of welfare associations as well as individuals have continued to show an uninterrupted interest in this hospital since the war, and, through their cooperation and assistance, continue to serve our patients in a very generous manner.

During the fiscal year ended June 30, 1921, as reported, there occurred a decided change in the out-patient service of this hospital, as a result of the opening of Hospital No. 70 in Manhattan, which took over from this hospital the supervision of the out-patient activities for this port, leaving to this hospital only a comparatively small out-patient department to care for patients in the vicinity of the hospital. This out-patient service has reached a volume sufficient to make it quite important. In comparison with the previous year this shows nearly 100 per cent increase in the number of times treated, with very little change in the other figures, a rather exceptional condition. This service is much embarrassed by lack of room and facilities. During the fiscal year under report, the total number of out-patients treated was 1,110, the total number of treatments given was 3,299, and the total number of physical examinations made was 254.

Personnel.—The present medical personnel consists of 14 medical officers with 2 part-time officers and 10 consultants at a nominal salary, who also serve Hospitals Nos. 43 and 70.

There has been a reduction in the number of reconstruction aids by two, leaving a total force of three, which is hardly adequate to the demand.

The year has been characterized by the usual excessive turnover among certain classes of employees, and we have frequently had difficulty in securing help of a certain class owing to disturbed industrial conditions and the prevalence of unduly high wages. The total personnel employed at the station has shown no great change.

Cost of operation.—Every effort has been made to administer the station as economically as possible with due regard to the maintenance of proper standards. The average cost of the ration for the year is $0.699, which shows a favorable comparison with that for the previous year. The dietetic service on the whole has been good, and it is believed that the quality and service of the food has been considerably improved. The average per diem cost for the year is $4.118, which is believed to be a favorable showing when due consideration is given to the continued prevalence of high prices and disturbed economic conditions. A review of the year's expenditures in this regard by months shows quite clearly the difficulties encountered in maintaining a low per diem. As in all hospitals, the average number of patients varies from time to time, dependent upon seasonal conditions, industrial conditions, and other conditions. During the winter months the wards have been full, and the hospital has been operating to capacity with a per diem of $4, or a little under. With the advent of warm weather, as usual, the number of patients is steadily reduced without any corresponding reduction in overhead, and a consequent rise in per diem costs. This is a problem difficult to meet, and is encountered by all similar institutions.

Improvements made and needed.—The hospital has been improved in many respects during the year by the addition of equipment, or the improvement of equipment already on hand. Valuable additions have been made to our professional equipment in the matter of surgical instruments and dental supplies. The motor equipment of the station has been much improved by the addition of two pieces of motor apparatus, and the general overhauling of other pieces. Arrangements are under way, although not completed, to improve our laundry equipment, and add a new and larger type of mangle.

No new construction has been done, and very little money has been expended in repairs and preservation, although the station stands much in need of the same.

One change of consequence has been begun and will be completed within the next 60 or 90 days, and that is the occupancy of the new kitchen and dining room building which was completed some three or four years ago. With the occupancy of this building, the facilities for the storing of subsistence supplies and the preparation and service of food will be vastly improved, to say nothing of the space gained thereby for other hospital activities.

It may be said in general terms that this hospital is giving satisfactory service to a large number of beneficiaries in spite of many difficulties and many urgent needs. While the plant as a whole is performing its service with satisfaction, it stands in much need of general improvement and extension. In its present condition it barely suffices to meet demands, and these demands are constantly increasing. No effort should be spared, therefore, to place this hospital in such a condition as adequately to meet not only the demands of the present, but the anticipated demands of the more or less near future.

As stated above, the hospital is congested and has insufficient space for a great number of its important departments. This is notably true with regard to its major professional facilities. Physiotherapy, X-ray, dental, genito-urinary, laboratory, and some other departments are very much cramped for space, and are operating under difficulties without modern, adequate equipment. It is doubtful whether any need of the hospital is more urgent than satisfactory arrangements for these various important professional activities. With the occupancy of the new kitchen and dining room building there will be made available certain space in the main building where these activities may be better housed should funds become available.

The most urgent needs of this hospital concern new construction and repairs and preservation, the details of which are given in the usual annual reports concerning these matters. As stated, another great need of this hospital is more space for professional facilities, and larger bed capacity to meet growing demands. The general equip-

ment of the hospital is in fairly good condition, and the personnel is adequate. The housing of the personnel is unsatisfactory particularly with regard to nurses and aides. The recreation house is a temporary structure which, while serving a useful purpose, is unsatisfactory and is a great fire hazard.

Recommendations.—General recommendations as to the needs of this station include the following important matters:

(1) The removal of certain major professional facilities to the space which will be vacated in the main building by the occupancy of the kitchen and dining room building, with the purchase and installation of new and modern equipment, particularly for the X-ray and physiotherapy departments.

(2) The expenditure of considerable money in general repairs and preservation. Both the buildings and grounds in a great many respects urgently need attention.

(3) The removal of as many as possible of the present temporary structures, and their replacement by more satisfactory fireproof buildings, especially with regard to the recreation house.

(4) The provision for more commodious housing for nurses and aids and for the attendants.

(5) The careful consideration of the future development of this plant, with an increase in its bed capacity to meet demands.

All of these recommendations, together with many others of minor importance, will be found in other detailed annual reports.

Abstract of Annual Report of United States Marine Hospital No. 9, Fort Stanton, N. Mex.

By H. J. WARNER, Surgeon in charge.

General.—United States Marine Hospital No. 9 is delightfully situated in the valley of the Bonito River, Lincoln County, south central New Mexico. An altitude of 6,231 feet, low humidity, and 350 days of sunshine a year make Fort Stanton an ideal location for the treatment of pulmonary diseases. The capacity of the hospital is 261 beds, divided into 81 beds for infirmary patients and 180 beds for ambulant patients. The Government reservation comprises 43 square miles, which enables the station to conduct farm and range operations, supplying itself with beef, pork, dairy products, and fruit and vegetables at a very reasonable cost.

Sanatorium population.—During the year 6 medical officers, 1 dentist, 13 nurses, and 139 other personnel have been employed in carrying on the work of the station. This number includes 20 employees whose duties were solely connected with farm and range department.

Résumé of services.

Total number of patients under treatment July 1, 1923	200
Total patients admitted during year	190
Total treated during year	390
Total merchant seamen treated	309
Total Veterans' Bureau patients treated	20
Total Employees' Compensation Commission patients treated	10
Total other beneficiaries treated	51
Number discharged during year	190
Number of deaths (included in preceding item)	32
Maximum number of patients under treatment	222
Daily average of patients under treatment	211
Number of patients under treatment June 30, 1923	200
Average stay of patients discharged, days	362

Medical department.—As noted, patients are divided into two classes—infirmary and ambulant.

The infirmary consists of three wards—a receiving ward with 11 beds, one infirmary ward of 37 beds, and another infirmary ward of 33 beds.

Infirmary patients are routinely admitted to the receiving ward, where they stay from 10 days to two weeks. A complete physical examination, Wassermann test, sputum test, and X-ray plate, are made during this period and diagnosis established. This period of detention in the receiving ward is also utilized to educate the patient in the proper care of himself and in the rules necessary for him to observe in order to prevent him from being a menace to those with whom he comes in contact. The period in the receiving ward is considered very important and has a marked effect upon the patient in his future life in the sanatorium.

If the patient does not develop any intercurrent contagious disease at the end of 10 days, he is transferred to ward No. 10 and is treated as a bed patient. As his condition improves and he becomes semiambulant he is transferred to ward No. 11, and is then allowed to walk to his meals at the general mess.

Ambulatory section.—The ambulatory section consists of 96 tent houses, each accommodating two patients. Tent houses are screened; have roller curtains to protect against storms; are outfitted with two beds, stove, electric lights, and other necessary conveniencies. The tent houses, so called, are located in parallel rows 30 feet apart on the side of a hill which slopes gently toward the station, a location providing good drainage. Ambulant patients are required to keep their own tent houses and the immediate grounds in a clean and orderly condition.

Patients are transferred to the ambulant section when their physical condition warrants. All patients observe rest hours in bed from 10.45 a. m. to 11.45 a. m., and from 12.30 p. m. to 2.30 p. m. Dur-

ing the greater portion of the year all ambulant patients are required to be in bed at 9 p. m. with lights out. During the three months in summer lights are required to be out at 10 p. m.

Roll call is held at 8 a. m., daily, at which all patients are required to attend or be accounted for. Such patients as examination and observation show to be suitable are put on regular exercise. Such patients known as the "husky squad" have their pulse and temperature taken before and after exercise and records kept of same. Usually exercise consists of walking and occasionally some light work around the station. Certain station positions are usually held open for patients about to be discharged, in order to try them out on full-time duty, and incidentally provide them with funds for a return to their homes. All patients are examined every 30 days or oftener if indicated.

Surgical department.—The medical officer detailed to the surgical department makes routine examinations of eyes, ears, nose, and throat of all new admissions. He also makes a physical examination and vaccinates every new employee, and looks after all sick employees requiring out-patient relief.

The chief conditions treated are tubercular laryngitis, simple laryngitis, chronic laryngitis, tubercular otitis media, and pyogenic otitis media. Heliotherapy is being used on selected cases with tuberculous complications of the larynx and pharynx with good results. Heliotherapy treatment of bone, joint, glandular, skin, and abdominal tuberculosis is being carried on with an almost uniformly favorable outcome.

Artificial pneumothorax treatment is used on carefully selected cases. On account of the tendency of the sailor not to apply for hospitalization until the disease is far advanced and both lungs are more or less involved, there are not as many patients suitable for this form of treatment as would be expected in a sanatorium of this size. During the year 232 inflations have been given to 6 patients under treatment. Of these 6 patients under continuous treatment, complete compression was obtained on 4 with great benefit.

X-ray department.—The work of the X-ray department consists chiefly in the taking and interpreting of chest plates. At present the equipment consists of a bedside unit, but a larger machine is soon to be installed, which should permit of much more satisfactory results. All patients on admission have a chest plate made, and as often thereafter as deemed necessary.

Summary of work.

	Cases.	Exposures.
Chests	357	412
Dental	134	307
Fluorscopic	61	61

Dental clinic.—The dental clinic is well equipped with a modern unit. The one dental officer on duty finds it difficult to keep up with the absolutely necessary work on the patients. As is well known, the great majority of sailors take little or no care of their teeth, and on their arrival here a great deal of work is necessary to put their teeth in such condition that it may be possible for them to get the maximum nourishment from their food.

Summary of work.

Number of new patients	138
Number of settings	2,106

Clinical laboratory.—The work of the clinical laboratory, as might be expected, consists chiefly of sputum examinations and Wassermann tests. These are done routinely on all patients on admission, and thereafter whenever deemed necessary by the ward surgeons.

Summary of work.

Sputum, tubercle bacillus	2,923
Complement fixation	125
Urine analysis	586
Feces, parasites and ova	131

Reconstruction department.—The work of the reconstruction department is divided into two sections, namely, occupational and educational.

This department is considered a very important and a necessary adjunct in the treatment of tuberculosis. Our patients are here over long periods of time, which, in connection with the depressing disease with which they are afflicted, requires something to divert and keep them from introspection and morbidness.

(*a*) Occupational section:

The work of this section consists of weaving, basket making, and metal work. It is hoped to develop a woodworking shop during the coming year, for which we have the necessary equipment. While there is only one aid on duty in this department, a great deal of work has been accomplished during the year, with much mental and physical benefit to the patients.

Number of patients working	57
Number of articles made	261

(*b*) Educational section:

The work of the educational department was started on September 27, 1922, and filled a long-felt want at this station. Though only one educational aid was on duty, through her efficient and enthusiastic labors a great deal of useful work has been done.

A great many of our patients are of foreign birth and have little knowledge of the English language, our customs, and system of Government. Special attention has been given to the teaching of English and commercial subjects. Those who are qualified are

Tent houses for ambulant patients, United States Marine Hospital No. 9, Fort Stanton, N. Mex.

Pure-bred Herefords in the beef herd of the farm department, United States Marine Hospital No. 9, Fort Stanton, N. Mex.

taught typing, shorthand, business arithmetic, and letter writing. Such texts are used as will assist in Americanizing the foreigners. A study is made of the Constitution, lives of our Presidents, and patriotic songs of our country. Many of our patients, even arrested cases, will never be able to return to their previous occupation, and the educational department enables them to prepare for a different and more suitable vocation.

Dietetic department.—This department is in charge of a competent dietitian, who has control of all the messes and the purchase of subsistence supplies. While a large part of the subsistence is produced on the station, groceries and many other articles must be purchased in distant markets. On account of the isolation of the station it is necessary to carry large inventories of foodstuffs to be assured of feeding our patients properly at all times.

Summary of rations served.

Officers' mess	6, 237
Nurses' mess	6, 021
Patients' mess	56, 002
Employees' mess	29, 568

Library.—The number of books in the library totals 3,537, covering many subjects. The station has received a number of donations of books from friends in various parts of the country which were much appreciated by patients and personnel.

The librarian, assisted by the secretaries of the Knights of Columbus and the Y. M. C. A., distributes books through the infirmary wards daily.

The farm department.—United States Marine Hospital No. 9 differs from other marine hospitals in that it maintains a farm and range department, which supplies the hospital with all the beef, pork, milk, and cream necessary for feeding patients and personnel, and also a large part of the vegetables and fruit used. A brief account may not be without interest.

The dairy herd consists of high-bred Holsteins and Jerseys, usually milked in about equal proportions. The milk is mixed to produce a product averaging 4½ per cent butterfat. There are usually about 60 to 70 cows milked daily. During the year the station was supplied with 56,991 gallons of high-quality milk at a cost of 32 cents per gallon. Milk in the cities of Roswell, N. Mex., and El Paso, Tex., sold for an average price of 62 cents per gallon. All dairy cattle were tested for tuberculosis twice during the year and no reactors were found at either test. The dairy also furnished the station with 6,022 pounds of veal at 15 cents per pound.

The beef herd consists of approximately 1,400 purebred Hereford cattle. During the year 98,945 pounds of beef were furnished to

the station at 15 cents per pound. If it had been necessary to purchase this quality of beef on the open market, it could not have been obtained for less than 22 cents per pound.

From the standpoint of earnings, the hog project shows the best results for the year. At a cost of 12 cents per pound 77,439 pounds of pork were delivered to the dietetic department. All hams and bacon used by the station are prepared and cured by the personnel of the farm department. The price of this product on the outside market averaged 30 cents per pound. Hogs on hand at the close of the fiscal year numbered 453 purebred Berkshires.

Social service.—The Y. M. C. A. maintains a secretary at this station who has been of inestimable value to patients and personnel in both religious and welfare work.

The Knights of Columbus detailed a secretary to this station on December 15, 1922, who has been very active in welfare work and during the summer months acted as manager of the local baseball team. The Knights of Columbus has also supplied three 8-reel moving pictures per week free to patients and personnel of the station. The secretary has distributed each week toilet articles, tobacco, etc., to all patients needing such service.

The Red Cross withdrew their representative October 4, 1922, on account of the fact that all ex-service men had been transferred to Veterans' Bureau hospitals.

During the greater part of the year a chaplain has been on duty. He has carried on religious work, attended the sick and dying, and officiated at all funerals. Sunday school for the children of officers and employees has been conducted regularly by a member of the personnel.

Clergymen of various religious denominations from El Paso and New Mexico towns have made occasional visits to this station for the purpose of conducting services.

During the year the Seaman's Social Club, a patients' organization, erected a commodious addition to its clubhouse. Many private donations were made for this worthy purpose, the largest being $206.82 from Rev. A. R. Mansfield, superintendent of the Seaman's Church Institute, of New York.

Recommendations.—It is recommended that United States Marine Hospital No. 9 be used exclusively for incipient and moderately advanced cases of tuberculosis with a favorable prognosis. On account of the salubrious climate, high altitude, and low humidity this place is unexcelled for the treatment and cure of tuberculosis, and the bed capacity should not be taken up by far-advanced and hopeless cases.

The development of Fort Stanton as contemplated in the building program of the bureau should be carried out as asoon as funds become available.

AMENDMENT TO REGULATIONS GOVERNING CARE OF LEPERS.

The original regulations governing the care of lepers, approved by the Secretary of the Treasury December 4, 1922, and published in Public Health Reports, December 22, 1922 (Reprint No. 806), have been amended as indicated below:

AMENDMENT TO THE REGULATIONS FOR THE APPREHENSION, DETENTION, TREATMENT, AND RELEASE OF LEPERS.

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
January 15, 1924.

The regulations for the apprehension, detention, treatment, and release of lepers, approved December 4, 1922, in accordance with sections 2 and 3 of Public Act No. 299, Sixty-fourth Congress, approved February 3, 1917, are hereby amended by changing paragraph 6, section (*a*), to read as follows:

"(6) *Detention and discipline of patients afflicted with leprosy.*—(*a*) No leper patient shall be allowed to proceed beyond the limits of the reservation set aside for the detention of patients suffering from leprosy except upon authority from the Surgeon General and under prescribed conditions. Should any leper patient violate his instructions in this regard he shall, upon being returned to the reservation, be placed in detention, properly safeguarded to prevent a repetition of the offense, or, at the discretion of the medical officer in charge, be permitted to give bond to the United States of America in a penal sum not exceeding five thousand dollars conditioned upon his faithful observance of this regulation."

(Signed) A. W. MELLON,
Secretary of the Treasury.

PUBLIC HEALTH NURSING BECOMES PERMANENT SECTION IN AMERICAN PUBLIC HEALTH ASSOCIATION.

After two years' probation, the public health nursing section of the American Public Health Association was made permanent at the annual meeting of the Association in Boston last October.

As workers in the field of public health, public health nurses, although engaged in a comparatively young profession, feel that they may now properly take their place in the membership of an organization which already includes physicians, health officers, bacteriologists, sanitary engineers, statisticians, nurses, health education workers, etc., and the secretary of the section, Agnes J. Martin, says that "it is felt that this affiliation is a privilege that should be accepted by all public health nurses in executive positions." With the opportunity that will now be afforded for a common meeting ground for

discussion of the problems of the interrelated fields of work, the officers of this new section believe that the affiliation will result in a better understanding and a closer cooperation between public health nurses and physicians and health officers.

DEATHS DURING WEEK ENDED JANUARY 26, 1924.

Summary of information received by telegraph from industrial insurance companies for the week ended January 26, 1924, and corresponding week of 1923. (From the Weekly Health Index, January 29, 1924, issued by the Bureau of the Census, Department of Commerce.)

	Week ended Jan. 26, 1924.	Corresponding week, 1923.
Policies in force	55, 316, 638	51, 932, 611
Number of death claims	10, 783	10, 899
Death claims per 1,000 policies in force, annual rate	10. 2	10. 9

Deaths from all causes in certain large cities of the United States during the week ended January 26, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, January 29, 1924, issued by the Bureau of the Census, Department of Commerce.)

City.	Week ended Jan. 26, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Jan. 26, 1924.[2]
	Total deaths.	Death rate.[1]		Week ended Jan. 26, 1924.	Corresponding week, 1923.	
Total	7,908	13.5	15.1	99	1,113	.....
Akron	24	6.0	11.3	2	11	21
Albany [3]	31	13.6	23.1	6	7	132
Atlanta	95	21.8	17.8	16	8	.....
Baltimore [3]	242	16.1	19.0	22	35	64
Birmingham	65	16.9	15.2	10	5	.....
Boston	214	14.4	20.0	28	53	78
Bridgeport	24	8.7	15.3	3	5	47
Buffalo	146	14.0	17.2	20	23	85
Cambridge	29	13.5	16.4	2	3	35
Camden [3]	37	15.3	18.1	6	4	95
Canton	17	8.6	.....	4	.....	84
Chicago [3]	677	12.0	12.7	85	105	78
Cincinnati	120	15.3	21.2	17	17	107
Cleveland	196	11.2	11.2	20	27	79
Columbus	73	14.3	17.6	3	6	29
Dallas	54	15.0	14.9	7	12	.....
Dayton	24	7.4	16.4	3	7	50
Denver	89	16.8	18.4	6	15	.....
Des Moines	37	13.3	11.1	6	5	.....
Detroit	261	13.7	14.1	36	43	67
Duluth	24	11.5	9.8	2	4	43
Erie	22	9.9	11.1	0	2	0
Fall River [3]	29	12.5	14.7	6	5	84
Flint	18	7.6	15.0	3	4	52
Fort Worth	19	6.7	8.7	1	5	.....
Grand Rapids	32	11.2	13.2	4	1	62
Houston	35	11.4	10.1	7	6	.....
Indianapolis	89	13.2	17.0	13	15	98
Jacksonville, Fla	46	24.4	22.4	8	3	.....
Jersey City	62	10.4	14.3	12	11	87
Kansas City, Kans	20	8.9	18.9	5	9	100
Kansas City, Mo	116	16.8	17.3	18	15	.....
Los Angeles	256	19.1	14.8	30	21	93
Louisville	81	16.3	22.1	3	15	29
Lowell	30	13.5	20.8	4	10	71
Lynn	27	13.6	18.3	4	6	101

[1] Annual rate per 1,000 population.
[2] Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1923. Cities left blank are not in the registration area for births.
[3] Deaths for week ended Friday, Jan. 25, 1924.

Deaths from all causes in certain large cities of the United States during the week ended January 26, 1924, infant mortality, annual death rate, and comparison with corresponding week of 1923. (From the Weekly Health Index, January 29, 1924, issued by the Bureau of the Census, Department of Commerce)—Continued.

City.	Week ended Jan. 26, 1924.		Annual death rate per 1,000 corresponding week, 1923.	Deaths under 1 year.		Infant mortality rate, week ended Jan. 26, 1924.
	Total deaths.	Death rate.		Week ended Jan. 26, 1924.	Corresponding week, 1923.	
Memphis	43	13.0	29.1	4	15	.....
Milwaukee	95	10.1	11.3	12	13	55
Minneapolis	93	11.6	9.7	10	6	54
Nashville [3]	48	20.3	22.5	2	5	.....
New Bedford	28	11.0	19.6	7	12	109
New Haven	46	13.6	24.1	6	12	78
New Orleans	184	23.4	20.5	15	16	.....
New York	1,435	12.4	12.9	174	192	70
Bronx Borough	158	9.5	11.4	16	23	56
Brooklyn Borough	487	11.6	11.0	72	53	78
Manhattan Borough	635	14.6	15.3	74	91	72
Queens Borough	110	10.3	11.6	11	19	60
Richmond Borough	45	18.0	18.0	1	6	18
Newark, N. J.	99	11.6	13.0	15	15	70
Norfolk	29	9.2	12.8	3	5	55
Oakland	71	15.0	10.4	4	4	50
Oklahoma City	18	9.0	.....	1	.....	.....
Omaha	57	14.3	12.5	2	8	21
Paterson	43	15.9	20.5	4	7	65
Philadelphia	546	14.6	19.1	62	82	79
Pittsburgh	197	16.4	19.7	40	26	136
Portland, Oreg.	65	12.2	10.1	11	6	114
Providence	67	14.3	17.4	10	11	81
Richmond	48	13.6	18.1	4	7	47
Rochester	66	10.6	11.3	3	9	24
St. Louis	239	15.3	15.0	7	12	.....
St. Paul	63	13.5	13.4	10	7	86
Salt Lake City [3]	37	15.0	7.4	6	2	100
San Antonio	64	17.4	14.1	10	10	.....
San Francisco	179	17.0	12.7	13	9	78
Schenectady	16	8.3	.....	1	.....	28
Seattle	75	12.4	10.2	5	2	48
Somerville	22	11.4	15.8	2	4	54
Spokane	31	15.5	13.0	1	2	21
Springfield, Mass.	47	16.5	10.5	9	3	152
Syracuse	41	11.4	13.8	4	3	50
Tacoma	26	13.2	15.9	1	5	23
Toledo	69	13.0	14.7	8	11	76
Trenton	45	18.1	18.8	3	5	49
Utica	27	13.4	16.1	3	4	65
Washington, D. C.	134	16.0	27.9	9	29	52
Waterbury	16	8.3	14.3	5	6	112
Wilmington, Del.	34	14.8	22.8	4	7	87
Worcester	40	10.7	13.9	4	9	48
Yonkers	25	11.9	11.6	5	3	109
Youngstown	39	15.4	11.8	8	6	116

[3] Deaths for week ended Friday, Jan. 25, 1924.

PREVALENCE OF DISEASE.

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.

UNITED STATES.

CURRENT STATE SUMMARIES.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

Reports for Week Ended February 2, 1924.

ALABAMA.

	Cases.
Chicken pox	67
Diphtheria	15
Influenza	126
Malaria	32
Measles	468
Mumps	29
Pneumonia	180
Smallpox	27
Tuberculosis	42
Typhoid fever	7
Whooping cough	36

ARIZONA.

Chicken pox	4
Diphtheria	5
Measles	34
Mumps	1
Ophthalmia neonatorum	1
Pneumonia	2
Scarlet fever	7
Smallpox	1
Tuberculosis	1

ARKANSAS.

Chicken pox	35
Diphtheria	8
Influenza	227
Malaria	43
Measles	119
Mumps	12
Ophthalmia neonatorum	1
Paratyphoid fever	2
Pellagra	3
Scarlet fever	4
Smallpox	8
Tuberculosis	15
Typhoid fever	14
Whooping cough	63

CALIFORNIA.

	Cases.
Diphtheria	315
Influenza	42
Lethargic encephalitis:	
Oakland	2
Tulare County	1
Measles	722
Scarlet fever	244
Smallpox:	
Compton	23
Long Beach	47
Los Angeles	136
Los Angeles County	77
Pasadena	9
Pomona	8
Scattering	61
Typhoid fever	9

COLORADO.

Chicken pox	20
Diphtheria	18
Measles	160
Mumps	38
Pneumonia	3
Scarlet fever	48
Septic sore throat	2
Smallpox	2
Tuberculosis	38
Typhoid fever	4
Whooping cough	9

CONNECTICUT.

Chicken pox	107
Conjunctivitis (infectious)	1
Diphtheria	53
German measles	2
Influenza	7
Lethargic encephalitis	2
Measles	169

CONNECTICUT—continued.

	Cases.
Mumps	129
Paratyphoid fever	3
Pneumonia (lobar)	34
Poliomyelitis	1
Scarlet fever	198
Septic sore throat	2
Smallpox	1
Tuberculosis (all forms)	24
Typhoid fever	1
Whooping cough	67

DELAWARE.

Chicken pox	5
Diphtheria	10
Influenza	2
Measles	1
Mumps	1
Pneumonia	7
Scarlet fever:	
Wilmington	8
Scattering	8
Tuberculosis	10
Typhoid fever	1
Whooping cough	4

FLORIDA.

Diphtheria	15
Influenza	12
Malaria	10
Pneumonia	12
Poliomyelitis	1
Smallpox	15
Typhoid fever	12

GEORGIA.

Cerebrospinal meningitis	2
Chicken pox	62
Dengue	1
Diphtheria	11
Dysentery	2
German measles	9
Hookworm disease	9
Influenza	94
Malaria	10
Measles	226
Mumps	21
Paratyphoid fever	1
Pellagra	1
Pneumonia	97
Scarlet fever	13
Septic sore throat	6
Smallpox	118
Tuberculosis (pulmonary)	14
Typhoid fever	5
Whooping cough	57

ILLINOIS.

Cerebrospinal meningitis:	
Bureau County	2
Cook County	3
La Salle County	1
Winnebago County	1
Diphtheria:	
Cook County	146
Scattering	83
Influenza	25
Lethargic encephalitis—Cook County	2

ILLINOIS—continued.

	Cases.
Measles	605
Pneumonia	463
Poliomyelitis—Rock Island County	1
Scarlet fever:	
Bureau County	15
Champaign County	9
Cook County	133
Jo Daviess County	11
Kane County	23
McLean County	9
Mason County	8
Madison County	11
St. Clair County	9
Scattering	97
Smallpox	11
Tuberculosis	373
Typhoid fever	30
Whooping cough	166

INDIANA.

Cerebrospinal meningitis—Daviess County	1
Chicken pox	59
Diphtheria:	
Lake County	13
Madison County	9
Vanderburgh County	12
Scattering	56
Influenza	50
Measles	608
Pneumonia	23
Scarlet fever:	
Lake County	28
Marshall County	10
St. Joseph County	31
Vigo County	22
Scattering	91
Smallpox:	
Lake County	15
Starke County	26
Scattering	37
Tuberculosis	42
Typhoid fever	5
Whooping cough	67

IOWA.

Diphtheria	34
Scarlet fever	61
Smallpox	5
Typhoid fever	3

KANSAS.

Cerebrospinal meningitis	2
Chicken pox	129
Diphtheria	61
German measles	14
Influenza	4
Measles	569
Mumps	130
Pneumonia	77
Poliomyelitis	2
Scarlet fever	85
Smallpox	30
Tetanus	1
Trachoma	1
Tuberculosis	42
Typhoid fever	2
Whooping cough	103

LOUISIANA.

	Cases.
Diphtheria	29
Hookworm disease	70
Influenza	31
Malaria	6
Measles	261
Pneumonia	67
Scarlet fever	8
Smallpox	38
Tuberculosis	43
Typhoid fever	6

MAINE.

Anthrax	1
Chicken pox	75
Diphtheria	14
German measles	14
Influenza	6
Lethargic encephalitis	1
Malaria	1
Measles	126
Mumps	36
Pneumonia	24
Scarlet fever	28
Tuberculosis	12
Typhoid fever	4
Whooping cough	46

MARYLAND.[1]

Cerebrospinal meningitis	2
Chicken pox	189
Diphtheria	48
German measles	5
Impetigo contagiosa	1
Influenza	69
Measles	64
Mumps	26
Paratyphoid fever	1
Pneumonia (all forms)	168
Poliomyelitis	1
Scarlet fever	122
Septic sore throat	3
Tuberculosis	34
Typhoid fever	7
Whooping cough	38

MASSACHUSETTS.

Cerebrospinal meningitis	4
Chicken pox	355
Conjunctivitis (suppurative)	26
Diphtheria	256
German measles	13
Influenza	8
Lethargic encephalitis	4
Measles	695
Mumps	288
Ophthalmia neonatorum	13
Pneumonia (lobar)	131
Poliomyelitis	1
Scarlet fever	492
Septic sore throat	1
Trachoma	3
Trichinosis	2
Tuberculosis (all forms)	137
Typhoid fever	9
Whooping cough	121

[1] Week ended Friday.

MICHIGAN.

	Cases.
Diphtheria	119
Measles	498
Pneumonia	134
Scarlet fever	280
Smallpox	126
Tuberculosis	31
Typhoid fever	3
Whooping cough	66

MINNESOTA.

Chicken pox	207
Diphtheria	83
Measles	296
Pneumonia	7
Scarlet fever	275
Smallpox	64
Tuberculosis	75
Typhoid fever	4
Whooping cough	7

MISSISSIPPI.

Cerebrospinal meningitis	1
Diphtheria	13
Poliomyelitis	1
Scarlet fever	1
Smallpox	5
Typhoid fever	12

MISSOURI.

(Exclusive of Cape Girardeau.)

Cerebrospinal meningitis	1
Chicken pox	82
Diphtheria	84
Influenza	23
Measles	782
Mumps	71
Pneumonia	38
Scarlet fever	126
Smallpox	14
Trachoma	7
Tuberculosis	47
Typhoid fever	6
Whooping cough	64

MONTANA.

Diphtheria	3
Scarlet fever	44
Smallpox	57
Typhoid fever	6

NEBRASKA.

Cerebrospinal meningitis	1
Chicken pox	30
Diphtheria	22
Influenza	5
Measles	413
Mumps	6
Pneumonia	1
Scarlet fever	43
Smallpox	1
Tuberculosis	3
Whooping cough	7

NEW JERSEY.

Cerebrospinal meningitis	4
Chicken pox	287

NEW JERSEY—continued.

	Cases.
Diphtheria	124
Influenza	14
Measles	330
Pneumonia	185
Poliomyelitis	1
Scarlet fever	184
Smallpox	12
Trachoma	1
Typhoid fever	8
Whooping cough	132

NEW MEXICO.

Chicken pox	23
Diphtheria	24
Influenza	5
Measles	41
Mumps	21
Pellagra	1
Pneumonia	22
Scarlet fever	10
Smallpox	1
Tuberculosis	15
Typhoid fever	2
Whooping cough	5

NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis	1
Diphtheria	147
Influenza	35
Lethargic encephalitis	2
Measles	1,215
Pneumonia	324
Poliomyelitis	2
Scarlet fever	416
Smallpox	3
Typhoid fever	30
Whooping cough	416

NORTH CAROLINA.

Chicken pox	260
Diphtheria	42
Measles	1,506
Scarlet fever	76
Septic sore throat	4
Smallpox	210
Typhoid fever	1
Whooping cough	549

OREGON.

Chicken pox	15
Diphtheria:	
Portland	18
Scattering	10
Influenza	3
Measles	409
Mumps	8
Pneumonia	3
Scarlet fever	26
Septic sore throat	1
Smallpox:	
Portland	20
Scattering	14
Tuberculosis	18

SOUTH DAKOTA.

	Cases.
Chicken pox	21
Diphtheria	6
Influenza	1
Measles	273
Mumps	1
Pneumonia	5
Scarlet fever	44
Typhoid fever	6
Whooping cough	9

TEXAS.

Cerebrospinal meningitis	5
Chicken pox	101
Diphtheria	49
Influenza	42
Measles	871
Mumps	46
Pneumonia	29
Scarlet fever	24
Smallpox	17
Trachoma	4
Tuberculosis	10
Typhoid fever	5
Whooping cough	26

VERMONT.

Chicken pox	13
Diphtheria	7
Measles	118
Mumps	15
Pneumonia	5
Scarlet fever	9
Smallpox	4
Typhoid fever	1
Whooping cough	66

WASHINGTON.

Chicken pox	59
Diphtheria:	
King County	15
Pierce County	9
Scattering	21
Measles	2,270
Mumps	38
Pneumonia	5
Scarlet fever:	
Cowlitz County	11
King County	22
Scattering	41
Smallpox:	
Cowlitz County	69
Douglas County	9
Scattering	20
Tuberculosis	41
Typhoid fever	8
Whooping cough	9

WEST VIRGINIA.

Diphtheria	12
Scarlet fever	12
Typhoid fever	7

WISCONSIN.

Milwaukee:	Cases.
Cerebrospinal meningitis	1
Chicken pox	52
Diphtheria	11
German measles	1
Influenza	1
Measles	3
Pneumonia	7
Scarlet fever	42
Tuberculosis	28
Whooping cough	42
Scattering:	
Cerebrospinal meningitis	1
Chicken pox	150
Diphtheria	65
German measles	1
Influenza	11

WISCONSIN—continued.

Scattering—Continued.	Cases.
Measles	303
Pneumonia	35
Scarlet fever	258
Smallpox	33
Trachoma	3
Tuberculosis	30
Typhoid fever	5
Whooping cough	130

WYOMING.

	Cases.
Chicken pox	3
Diphtheria	4
Measles	138
Scarlet fever	8
Whooping cough	21

Reports for Week Ended January 26, 1924.

DISTRICT OF COLUMBIA.

	Cases.
Chicken pox	58
Diphtheria	10
Measles	9
Scarlet fever	35
Smallpox	3
Tuberculosis	28
Typhoid fever	1
Whooping cough	10

NEBRASKA.

Cerebrospinal meningitis	1
Chicken pox	32
Diphtheria	17
Measles	321
Mumps	7
Pneumonia	2
Scarlet fever	28
Smallpox	1
Typhoid fever	1
Whooping cough	27

NORTH DAKOTA.

	Cases.
Anthrax	4
Chicken pox	17
Diphtheria	14
German measles	15
Influenza	1
Measles	237
Pneumonia	17
Scarlet fever	64
Smallpox	14
Tuberculosis	11
Typhoid fever	1
Whooping cough	3

WYOMING.

Chicken pox	9
Diphtheria	3
Measles	75
Scarlet fever	19
Whooping cough	16

SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
November, 1923.										
Oklahoma	.....	84	40	61	29	.....	.....	163	35	96
December, 1923.										
California	3	1,316	161	12	1,497	4	28	1,086	543	66
Hawaii	1	17	113	.....	31	.....	.....	2	.....	12
Montana	3	39	.....	.....	956	.....	.....	137	181	8
Virginia	11	519	1,500	108	1,430	7	4	370	25	70

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924.

The cities included in the following table have an aggregate estimated population, as of July 1, 1923, of about 29,700,000.

Diphtheria.—In the cities represented in the table, the number of cases of diphtheria reported for the week ended January 19, 1924, is generally about the same as for the corresponding week of last year and only very little greater than the calculated expectancy. A slight increase in prevalence of diphtheria in the Pacific coast cities is indicated.

Influenza.—The reports received do not show any increased prevalence of influenza this year. The number of deaths attributed to influenza is less than half as large as it was during the corresponding week last year. The cities included in the table report 1,077 deaths from pneumonia for the week ended January 19, 1924, which may be compared with 1,220 deaths from this disease which were reported by the same cities for the week ended January 20, 1923.

Scarlet fever.—The reports from State health officers, as well as the city reports, indicate a slight increase in scarlet fever over last week. The figures are higher than they were for the corresponding week of the year 1923, and considerably higher than the calculated expectancy. The increase appears to be general, including all sections of the country.

Smallpox.—A decided increase in the number of cases of smallpox is indicated by the reports for the week from cities in the Pacific Coast States. An increase is also noted in the East North Central and South Atlantic States. Increases are shown when the figures are compared with those for last week, with the corresponding week of last year, and with the calculated expectancy. The disease is mild in type, and very few deaths are reported.

Typhoid fever.—The figures for the week show that typhoid fever is slightly more prevalent in the cities included in the table than it was one year ago. The number of cases is not large, however.

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

The "calculated expectancy," given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever, is the result of an attempt to ascertain from previous occurrence how many cases of the disease under consideration may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding week of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the calculated expectancy is the mean of the number of cases reported for the week during nonepidemic years.

If reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1915 is included. In obtaining the calculated expectancy, the figures are smoothed when necessary to avoid abrupt deviations from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the calculated expectancy.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, calculated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, calculated expectancy.	Cases reported.
NEW ENGLAND.										
Maine:										
Portland	.....	2	10	4	0	1	.....	3	2	1
New Hampshire:										
Concord	0	0	0	0	0	12	0	2	1	0
Manchester	0	2	0	0	1	6	0	4	2	2
Nashua	0	0	0	0	0	9	1	0	1	2
Vermont:										
Barre	3	0	0	0	0	0	0	0	1	2
Massachusetts:										
Boston	88	68	73	1	1	117	25	31	50	146
Fall River	13	6	5	0	0	2	2	9	3	8
Springfield	8	4	6	0	0	17	2	4	6	10
Worcester	10	5	9	0	0	4	39	14	10	23
Rhode Island:										
Pawtucket	.....	2	1	0	0	0	.....	1	1	12
Providence	0	15	12	1	0	0	0	7	8	60
Connecticut:										
Bridgeport	0	10	6	0	1	0	0	1	5	6
Hartford	.....	8	4	0	0	16	.....	3	6	45
New Haven	28	7	4	0	0	7	41	3	6	17
MIDDLE ATLANTIC.										
New York:										
Buffalo	0	28	30	1	2	14	0	14	20	40
New York	235	274	247	78	13	523	154	224	164	228
Rochester	11	13	14	0	1	1	3	13	12	17
Syracuse	42	10	7	0	0	65	0	5	14	45
New Jersey:										
Camden	.....	5	5	.....	.....	1	.....	6	2	3
Newark	50	29	13	30	3	29	53	16	22	16
Trenton	0	8	14	1	2	26	0	5	3	0
Pennsylvania:										
Philadelphia	.....	74	102	9	8	28	.....	86	53	69
Pittsburgh	.....	25	50	1	3	12	.....	53	21	42
Reading	.....	5	6	0	0	0	.....	0	2	1
EAST NORTH CENTRAL.										
Ohio:										
Cincinnati	13	17	11	0	2	61	0	14	10	14
Cleveland	104	36	19	6	2	14	96	33	40	35
Columbus	.....	5	8	0	0	1	.....	8	8	15
Toledo	0	7	5	.....	1	12	0	7	17	28
Indiana:										
Fort Wayne	0	4	7	.....	0	6	0	2	3	11
Indianapolis	0	19	16	.....	0	20	111	11	12	3
South Bend	.....	1	7	.....	0	0	.....	4	3	7
Terre Haute	1	1	0	.....	0	1	0	2	2	3
Illinois:										
Chicago	185	167	121	16	7	79	88	67	160	168
Cicero	6	4	3	0	0	0	14	1	1	1
Springfield	1	3	1	.....	0	0	1	4	2	2

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, calculated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, calculated expectancy.	Cases reported.
EAST NORTH CENTRAL—continued.										
Michigan:										
Detroit	96	82	99	0	0	63	67	45	81	109
Flint	15	9	12	0	0	70	4	7	8	9
Grand Rapids	.....	4	6	0	0	3	.....	0	8	19
Saginaw	2	3	1	0	0	8	3	2	3	21
Wisconsin:										
Madison	12	0	3	.....	0	0	0	1	3	8
Milwaukee	76	23	15	0	0	7	.....	0	40	47
Racine	4	1	2	.....	0	1	0	1	5	34
Superior	2	1	3	.....	0	2	.....	2	2	2
WEST NORTH CENTRAL.										
Minnesota:										
Duluth	12	3	0	.....	0	5	0	5	4	15
Minneapolis	138	20	42	.....	2	3	4	14	25	69
St. Paul	.....	14	14	.....	0	13	.....	9	15	52
Iowa:										
Sioux City	2	2	2	.....	.....	1	0	.....	3	0
Waterloo	5	1	0	.....	.....	1	16	.....	3	1
Missouri:										
Kansas City	20	14	8	5	6	122	6	11	13	14
St. Joseph	2	5	4	0	0	64	4	8	4	1
St. Louis	21	72	43	0	0	8	11	.....	29	67
North Dakota:										
Fargo	0	1	0	.....	2	0	0	3	1	0
Grand Forks	.....	1	0	.....	0	7	0	0	1	0
South Dakota:										
Sioux Falls	.....	1	1	0	0	42	.....	4	2	1
Nebraska:										
Lincoln	6	4	4	.....	0	72	0	3	3	5
Omaha	6	7	6	.....	0	12	.....	12	8	5
Kansas:										
Topeka	9	3	0	.....	0	20	0	3	3	0
Wichita	10	4	5	.....	0	85	81	4	4	2
SOUTH ATLANTIC.										
Delaware:										
Wilmington	.....	3	11	0	0	2	.....	3	2	15
Maryland:										
Baltimore	184	38	30	30	1	37	5	49	35	47
Cumberland	.....	1	0	3	0	0	.....	1	1	0
Frederick	.....	1	0	0	0	8	.....	0	.....	0
District of Columbia:										
Washington	62	21	11	0	0	4	0	25	20	36
Virginia:										
Lynchburg	9	1	3	0	0	1	0	2	1	1
Norfolk	0	3	4	0	0	58	0	5	1	3
Richmond	.....	5	19	2	0	4	.....	6	4	5
Roanoke	2	2	1	0	0	0	3	1	1	1
West Virginia:										
Charleston	0	2	4	0	0	0	0	1	1	0
Huntington	.....	2	1	0	0	0	.....	2	0	0
Wheeling	.....	2	11	0	0	3	.....	3	1	4
North Carolina:										
Raleigh	11	2	1	0	0	1	0	2	1	1
Wilmington	0	0	2	0	0	13	0	1	1	1
Winston-Salem	6	1	5	0	0	158	2	4	1	3
South Carolina:										
Charleston	0	2	2	0	0	16	1	3	1	3
Columbia	7	1	1	0	0	94	8	4	1	0
Greenville	0	0	0	0	0	12	0	1	1	0
Georgia:										
Atlanta	0	3	4	3	0	12	1	15	3	7
Brunswick	0	1	0	0	0	19	0	0	0	0
Savannah	0	1	0	7	0	5	0	2	1	0
Florida:										
St. Petersburg	3	.....	0	0	0	34	.....	0	.....	0
Tampa	0	1	3	0	0	18	0	4	1	1

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Chicken pox, cases reported.	Diphtheria.		Influenza.		Measles, cases reported.	Mumps, cases reported.	Pneumonia, deaths reported.	Scarlet fever.	
		Cases, calculated expectancy.	Cases reported.	Cases reported.	Deaths reported.				Cases, calculated expectancy.	Cases reported.
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	0	1	0	0	0	0	0	3	1	1
Lexington	6	1	0	0	0	1	2	3	1	0
Louisville	2	12	1	0	0	2	0	7	4	6
Tennessee:										
Memphis	28	7	7	0	0	53	1	2	2	12
Nashville	4	3	2	0	1	5	0	3	2	2
Alabama:										
Birmingham	.....	3	2	6	0	34	.....	9	4	4
Mobile	1	1	0	.....	3	2	0	0	0	0
Montgomery	.....	1	3	0	0	2	.....	6	0	1
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	0	1	0	0	.....	0	1	.....	1	1
Little Rock	2	2	4	0	.....	3	1	.....	2	2
Louisiana:										
New Orleans	4	14	18	3	2	32	0	19	4	1
Shreveport	4	.....	1	0	0	14	1	5	.....	1
Oklahoma:										
Oklahoma	4	1	3	0	0	4	0	2	3	2
Tulsa	12	3	1	.....	.....	0	0	.....	2	2
Texas:										
Dallas	8	6	10	0	0	307	9	8	2	5
Galveston	0	1	1	.....	.....	0	0	5	1	2
Houston	.....	3	2	.....	.....	10	.....	6	1	5
San Antonio	0	1	2	1	0	4	0	4	0	4
MOUNTAIN.										
Montana:										
Billings	9	0	0	0	0	47	0	2	2	2
Great Falls	8	1	1	0	0	57	0	0	1	3
Helena	0	.....	0	0	0	2	0	0	.....	0
Missoula	1	0	2	0	0	11	0	1	1	1
Idaho:										
Boise	0	1	0	0	0	0	0	0	1	2
Colorado:										
Denver	24	11	8	0	0	19	1	19	6	22
Pueblo	2	3	4	0	0	143	4	2	3	4
New Mexico:										
Albuquerque	4	0	1	0	0	2	0	0	2	0
Utah:										
Salt Lake City	20	4	4	0	0	155	12	6	5	2
Nevada:										
Reno	0	0	0	0	0	0	0	0	1	0
PACIFIC.										
Washington:										
Seattle	18	6	4	0	.....	1,407	0	.....	10	9
Spokane	23	4	2	0	.....	773	0	.....	3	12
Tacoma	15	2	5	0	.....	161	5	.....	3	2
California:										
Los Angeles	97	26	81	17	6	19	4	26	17	106
Sacramento	.....	2	10	0	0	4	.....	4	1	0
San Francisco	23	25	91	3	0	128	6	10	18	38

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, calculated expectancy.	Cases reported.	Deaths reported.		Cases, calculated expectancy.	Cases reported.	Deaths reported.		
NEW ENGLAND.										
Maine:										
Portland	73,129	0	0	0	1	0	0	0	.....	27
New Hampshire:										
Concord	22,408	0	0	0	0	0	0	0	0	7
Manchester	81,383	0	0	0	1	0	0	0	0	21
Nashua	29,234	0	0	0	0	0	0	0	0	7
Vermont:										
Barre	[1] 10,008	0	0	0	1	0	0	0	1	3
Massachusetts:										
Boston	770,400	0	0	0	11	1	4	1	22	220
Fall River	120,912	0	0	0	3	0	0	0	7	45
Springfield	144,227	0	0	0	3	0	1	0	0	39
Worcester	191,927	0	0	0	2	0	2	0	11	76
Rhode Island:										
Pawtucket	68,799	0	0	0	1	0	1	0	.....	18
Providence	242,378	0	0	0	5	0	3	0	5	69
Connecticut:										
Bridgeport	[1] 143,555	0	0	0	0	0	0	0	0	33
Hartford	[1] 138,036	0	0	0	4	0	0	0	.....	34
New Haven	172,937	0	0	0	1	1	0	0	12	23
MIDDLE ATLANTIC.										
New York:										
Buffalo	536,718	0	0	0	8	2	1	0	37	119
New York	5,927,625	0	0	0	[2] 98	12	21	1	130	1,468
Rochester	317,867	0	0	0	3	0	0	0	7	70
Syracuse	184,511	0	0	0	2	0	5	0	6	43
New Jersey:										
Camden	124,157	0	0	0	3	0	0	0	.....	44
Newark	438,609	0	[1]	0	9	1	1	0	17	92
Trenton	127,390	0	0	0	0	0	0	0	1	39
Pennsylvania:										
Philadelphia	1,922,788	0	0	0	50	5	1	0	.....	562
Pittsburgh	613,442	0	0	0	10	2	1	0	.....	194
Reading	110,917	0	0	0	2	0	0	0	.....	25
EAST NORTH CENTRAL.										
Ohio:										
Cincinnati	406,312	1	2	0	9	1	0	0	16	126
Cleveland	888,519	3	1	0	18	1	2	0	34	209
Columbus	261,082	1	0	0	4	0	0	0	.....	65
Toledo	268,338	1	8	0	5	1	0	1	0	64
Indiana:										
Fort Wayne	93,573	1	4	0	0	1	0	0	3	26
Indianapolis	342,718	3	21	0	4	1	0	0	8	91
South Bend	76,709	0	1	0	0	0	0	0	.....	15
Terre Haute	68,939	0	0	0	2	0	0	0	9	21
Illinois:										
Chicago	2,886,121	2	2	0	51	4	14	0	28	647
Cicero	55,968	0	0	0	0	0	0	0	0	9
Springfield	61,833	0	0	0	0	0	0	0	1	21
Michigan:										
Detroit	995,668	5	48	0	19	2	0	0	27	234
Flint	117,938	2	0	0	0	0	0	0	0	25
Grand Rapids	145,947	0	2	0	0	1	0	0	.....	26
Saginaw	69,754	0	0	0	1	0	1	0	12	21
Wisconsin:										
Madison	42,519	0	1	0	0	0	0	0	3	4
Milwaukee	484,595	5	1	0	3	1	0	0	43	113
Racine	64,393	0	1	0	0	0	0	0	1	12
Superior	[1] 39,671	3	8	0	0	0	0	1	0	8

[1] Population Jan. 1, 1920. [2] Pulmonary only.

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis, deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, calculated expectancy.	Cases reported.	Deaths reported.		Cases, calculated expectancy.	Cases reported.	Deaths reported.		
WEST NORTH CENTRAL.										
Minnesota:										
Duluth	105,289	1	7	0	0	1	0	0	1	21
Minneapolis	409,125	15	5	0	5	2	1	0	0	103
St. Paul	241,891	20	22	0	3	0	1	0	.....	61
Iowa:										
Sioux City	79,662	2	0	.....	.....	0	0	.....	2	.....
Waterloo	39,667	0	0	.....	.....	0	0	.....	4	.....
Missouri:										
Kansas City	351,819	7	0	0	3	0	0	0	5	83
St. Joseph	78,232	2	0	0	0	0	0	0	2	36
St. Louis	803,853	2	1	0	12	2	1	1	51	195
North Dakota:										
Fargo	24,841	1	0	0	1	0	0	0	0	12
Grand Forks	14,547	1	0	.....	.....	0	0	.....	.....	.....
South Dakota:										
Sioux Falls	29,206	1	0	0	0	0	0	0	.....	10
Nebraska:										
Lincoln	58,761	1	0	0	0	1	0	0	1	20
Omaha	204,382	4	0	0	4	0	0	0	.....	52
Kansas:										
Topeka	52,555	0	0	0	0	0	0	0	0	18
Wichita	79,261	1	10	0	2	0	0	0	2	28
SOUTH ATLANTIC.										
Delaware:										
Wilmington	117,728	0	0	0	2	0	0	0	.....	31
Maryland:										
Baltimore	773,580	0	0	0	12	3	4	0	16	231
Cumberland	32,361	0	0	0	1	0	0	0	.....	9
Frederick	11,301	0	0	0	0	0	0	0	.....	7
District of Columbia:										
Washington	[1] 437,571	0	4	0	11	2	1	0	0	142
Virginia:										
Lynchburg	30,277	0	0	0	1	0	0	0	30	6
Norfolk	159,089	0	0	0	1	1	0	0	9	.....
Richmond	181,044	0	0	0	4	1	0	0	.....	56
Roanoke	55,502	0	0	0	2	1	0	0	0	12
West Virginia:										
Charleston	45,597	0	0	0	2	0	0	0	1	14
Huntington	57,918	1	0	0	1	0	0	0	.....	12
Wheeling	[1] 56,208	0	0	0	3	1	1	1	.....	20
North Carolina:										
Raleigh	29,171	0	2	0	1	0	0	0	15	11
Wilmington	35,719	0	0	0	1	0	0	0	0	10
Winston-Salem	56,230	3	4	0	0	0	0	0	9	16
South Carolina:										
Charleston	71,245	0	0	0	2	0	0	0	0	36
Columbia	39,688	0	3	0	1	0	0	0	0	25
Greenville	25,789	0	2	0	0	0	0	0	4	5
Georgia:										
Atlanta	222,963	2	65	0	4	0	0	0	0	72
Brunswick	15,937	0	0	0	0	0	0	0	0	2
Savannah	89,448	1	1	0	2	1	1	0	0	29
Florida:										
St. Petersburg	24,403	.....	0	0	1	.....	0	0	.....	13
Tampa	56,050	0	0	0	2	1	0	1	0	23

[1] Population Jan. 1, 1920.

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Population July 1, 1923, estimated.	Smallpox.			Tuberculosis deaths reported.	Typhoid fever.			Whooping cough, cases reported.	Deaths, all causes.
		Cases, calculated expectancy.	Cases reported.	Deaths reported.		Cases, calculated expectancy.	Cases reported.	Deaths reported.		
EAST SOUTH CENTRAL.										
Kentucky:										
Covington	57,877	0	0	0	1	0	0	0	0	1
Lexington	43,673	0	0	0	3	0	0	0	0	19
Louisville	257,671	1	0	0	6	1	0	0	1	61
Tennessee:										
Memphis	170,067	2	0	0	6	0	1	0	2	43
Nashville	121,128	1	2	0	5	0	1	1	8	46
Alabama:										
Birmingham	195,901	1	2	0	6	1	0	0	.....	66
Mobile	63,858	1	0	0	0	0	0	0	0	31
Montgomery	45,383	1	0	0	0	0	1	0	.....	25
WEST SOUTH CENTRAL.										
Arkansas:										
Fort Smith	30,635	0	0	.....	.....	0	0	.....	0	.....
Little Rock	70,916	0	0	.....	.....	0	0	.....	5	.....
Louisiana:										
New Orleans	404,575	4	0	0	15	4	1	0	0	161
Shreveport	54,590	.....	6	0	2	.....	1	0	0	27
Oklahoma:										
Oklahoma	101,150	2	3	0	2	0	0	1	0	20
Tulsa	102,018	0	0	.....	.....	0	0	.....	0	.....
Texas:										
Dallas	177,274	3	0	0	4	0	1	1	1	41
Galveston	46,877	1	0	0	0	0	0	0	0	20
Houston	154,970	1	0	0	6	1	2	0	.....	46
San Antonio	184,727	0	0	0	9	0	1	0	0	69
MOUNTAIN.										
Montana:										
Billings	16,927	1	0	0	0	0	0	0	0	4
Great Falls	27,787	2	0	0	1	1	0	0	2	6
Helena	[1] 12,037	.....	0	0	1	.....	0	0	0	1
Missoula	[1] 12,668	1	4	0	0	0	0	0	2	3
Idaho:										
Boise	22,806	0	0	0	0	0	0	0	0	4
Colorado:										
Denver	272,031	8	0	0	12	0	0	0	4	97
Pueblo	43,519	0	0	0	1	0	0	0	3	10
New Mexico:										
Albuquerque	16,648	0	0	0	4	0	0	0	0	13
Utah:										
Salt Lake City	126,241	5	0	0	2	0	0	0	2	37
Nevada:										
Reno	12,429	0	0	0	0	0	0	0	0	4
PACIFIC.										
Washington:										
Seattle	[1] 315,685	4	2	.....	.....	1	0	.....	1	.....
Spokane	104,573	9	33	.....	.....	0	0	.....	0	.....
Tacoma	101,731	2	2	.....	.....	0	0	.....	0	.....
California:										
Los Angeles	666,853	2	180	1	23	3	1	0	3	237
Sacramento	69,950	0	4	0	1	1	0	0	.....	23
San Francisco	539,098	1	0	0	18	1	0	0	2	183

[1] Population Jan. 1, 1920.

CITY REPORTS FOR WEEK ENDED JANUARY 19, 1924—Continued.

Division, State, and city.	Cerebrospinal meningitis.		Lethargic encephalitis.		Pellagra.		Poliomyelitis (infantile paralysis).		
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Calculated expectancy.	Cases.	Deaths.
NEW ENGLAND.									
Vermont:									
Barre	0	0	0	1	0	0	.....	0	0
Massachusetts:									
Boston	0	1	0	1	0	0	1	1	0
MIDDLE ATLANTIC.									
New York:									
New York	5	1	5	2	0	0	1	1	0
Pennsylvania:									
Philadelphia	0	1	0	0	0	0	0	0	0
EAST NORTH CENTRAL.									
Ohio:									
Cincinnati	0	0	1	0	0	0	0	0	0
Illinois:									
Chicago	2	0	1	0	0	0	0	1	0
Michigan:									
Detroit	0	0	1	0	0	0	0	1	0
Wisconsin:									
Milwaukee	1	1	0	0	0	0	0	0	0
WEST NORTH CENTRAL.									
Minnesota:									
Duluth	0	1	0	0	0	0	0	0	0
Missouri:									
Kansas City	0	0	1	1	0	0	0	0	0
St. Louis	3	0	0	0	0	0	0	0	0
SOUTH ATLANTIC.									
Maryland:									
Baltimore	0	0	1	0	0	0	0	1	1
North Carolina:									
Raleigh	0	0	0	0	0	1	0	0	0
Winston-Salem	0	0	0	0	1	0	.....	0	0
South Carolina:									
Columbia	0	0	0	0	0	1	0	0	0
Georgia:									
Atlanta	1	1	0	0	0	0	0	0	0
Savannah	0	0	0	0	1	0	0	0	0
EAST SOUTH CENTRAL.									
Alabama:									
Mobile	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL.									
Texas:									
San Antonio	0	0	0	1	0	0	.....	0	0
PACIFIC.									
California:									
Los Angeles	2	2	0	1	0	0	1	3	1
San Francisco	0	0	1	0	0	0	0	0	0

FOREIGN AND INSULAR.

AUSTRALIA.

Influenza—Adelaide.

During the three weeks ended December 15, 1923, 12 cases of influenza were notified at Adelaide, Australia.

BOLIVIA.

Communicable Diseases—La Paz—December, 1923.

Communicable diseases were notified at La Paz, Bolivia, during the month of December, 1923, as follows:

Disease.	Cases.	Deaths.	Disease.	Cases.	Deaths.
Cerebrospinal meningitis	2	6	Smallpox	25	5
Poliomyelitis (infantile paralysis)	.....	1	Tuberculosis	40	9
Scarlet fever	.....	1	Typhoid fever	6	1
			Typhus fever	25	3

Population, census 1909, 80,000; present estimated population, 100,000.

Dysentery—Influenza.

During the same period, 19 deaths from dysentery and one case of influenza were notified at La Paz.

CHILE.

Mortality—Concepcion—November, 1923.

During the month of November, 1923, 276 deaths (including 13 stillbirths), of which 107 were in children under one year of age, were reported at Concepcion, Chile. Certain causes of death were stated as follows: Bronchopneumonia, 21 deaths; croup, 2; heart affections, 20; influenza, 3; measles, 14; meningitis, 3; pneumonia, 35; smallpox, 7; typhus fever, 3. (Population, officially estimated, 64,780.)

CUBA.

Typhoid Fever—Gerona, Isle of Pines.

During the period January 11–20, 1923, three cases of typhoid fever were reported present at Nueva Gerona, Isle of Pines. The cases were stated to have been imported.

ECUADOR.

Communicable Diseases—Quito—November, 1923.

Communicable diseases were reported at Quito, Ecuador, during the month of November, 1923, as follows:

Disease.	Cases.	Deaths.	City.	Vicinity.	Disease.	Cases.	Deaths.	City.	Vicinity.
Diphtheria	84	5	54	30	Typhoid fever[1]	1	1	1	.....
Plague	11	1	9	2	Typhus fever	14	1	9	5
Scarlet fever	5	2	5	.....	Whooping cough	21	9	19	2
Smallpox	167	26	125	42					

[1] Paratyphoid, 25 (3). City, 22 cases.

GUADELOUPE (WEST INDIES).

Smallpox (Alastrim).

Under date of January 16, 1923, smallpox (alastrim) was reported still present in the Island of Guadeloupe. Cases were reported at Basse Terre, at Moule, in the vicinity of Pointe à Pitre, and in the interior of the island.

ITALY.

Quarantine against Lisbon, Portugal.

According to information dated December 28, 1923, vessels arriving at Italian ports from Lisbon, Portugal, have been declared subject to quarantine regulations against plague.

MADAGASCAR.

Plague—Tananarive Province—October 16–31, 1923.

During the period October 16 to 31, 1923, 40 cases of plague with 38 deaths were reported in the Province of Tananarive, Madagascar. Of these, 14 cases with 14 deaths occurred in the town of Tananarive and 26 cases with 24 deaths in other localities of the province. The types of the disease were stated to be bubonic, pneumonic, and septicemic.

PANAMA CANAL.

Communicable Diseases—December, 1923.

During the month of December, 1923, cases of communicable diseases were reported for the Panama Canal as follows:

Disease.	Canal Zone.	Colon.	Panama.	Non-resident.	Total.
Chicken pox	4	3	3	.....	10
Diphtheria	.....	.....	1	.....	1
Dysentery	1	1	5	2	9
Hookworm infection	2	1	17	21	41
Malaria	52	3	5	10	70
Measles	2	5	49	6	62
Meningitis	1	.....	.....	.....	1
Pneumonia	2	.....	41	1	44
Typhoid fever	.....	.....	1	2	3
Tuberculosis	11	2	14	1	28
Vincent's angina	3	.....	.....	.....	3
Whooping cough	11	1	25	.....	37

PARAGUAY.

Plague—Asuncion.

Information published in the local press and received under date of December 18, 1923, shows the occurrence of six cases of plague with four deaths at Asuncion, Paraguay.

PERU.

Plague—December, 1923.

During the month of December, 1923, 15 cases of plague with 6 deaths were reported in Peru. For distribution of occurrence according to localities, see page 276.

PORTUGUESE WEST AFRICA.

Plague—Loanda, Angola.

During the period October 29 to December 1, 1923, 16 deaths from plague (one pneumonic) were reported at Loanda, Angola, Portuguese West Africa. The total number of cases occurring in the months of October and November, 1923, was 59, of which 15 were in Europeans and 44 in natives, with 23 deaths (European, 4; native, 19).

Plague-Infected Rats—Vaccination.

During the period October 29–December 1, 1923, four plague-infected rats were reported found at Loanda. Vaccination of the population against plague was stated to have been instituted by the health authorities of the city, being made obligatory for natives and optional for Europeans.

TURKEY.

Plague—Constantinople.

During the week ended December 22, 1923, one case of plague with one death was reported at Constantinople.

UNION OF SOUTH AFRICA.

Plague—Orange Free State.

During the week ended December 8, 1923, four cases of plague were reported at the Wonderfontein Farm, about 45 miles east of Hoopstad, Orange Free State. The origin of the outbreak had not been determined. Plague was stated to be known to be present among wild rodents in this area.

Plague—Wild Rodents—Uitenhage District.

Information received under date of December 28, 1923, shows the presence of plague infection in wild rodents in Uitenhage District, Cape Province, Union of South Africa, occurring in the veld area

where cases of plague in man have recently occurred. The carcass of a multimammate mouse found November 30, 1923, near the eastern border of the Haarhoff's Kraal farm was found plague infected.[1]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

The reports contained in the following tables must not be considered as complete or final as regards either the lists of countries included or the figures for the particular countries for which reports are given.

Reports Received During Week Ended February 8, 1924.[a]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India				Nov. 18–24, 1923: Cases, 1,456; deaths, 853.
Calcutta	Dec. 9–15	13	12	
Madras	Dec. 16–22	4	1	
Rangoon	Dec. 9–15	2	1	

PLAGUE.

Brazil:				
Bahia	Nov. 18–24	1		
Ceylon:				
Colombo	Dec. 9–15	8	6	Plague rats, 2.
China:				
Nanking	Dec. 16–29			Present.
Ecuador:				
Quito	Nov. 1–30	11	1	
India				Nov. 18–24, 1923: Cases, 3,802; deaths, 2,745.
Madras Presidency	Dec. 16–22	334	216	
Rangoon	Dec. 9–15	1	1	
Iraq:				
Bagdad	Dec. 2–8	5	4	
Madagascar:				
Tananarive Province				Oct. 16–31, 1923: Cases, 40; deaths, 38. Bubonic, pneumonic, septicemic.
Tananarive town	Oct. 16–31	14	14	Other localities: Cases, 26; deaths, 24.
Paraguay:				
Asuncion		6	4	
Peru	Dec. 18			Dec. 1–31, 1923: Cases, 15; deaths, 6.
Localities—				
Chancay	Dec. 1–31	2		
Chiclayo	do	1		
Lima (city)	do	7	3	
Lima (suburbs)	do	4	3	
Lurin	do	1		
Portuguese West Africa:				
Angola—				
Loanda	Oct. 29–Dec. 1		16	One pneumonic. Oct.–Nov., 1923: Cases, 59; deaths, 23. Oct. 27–Dec. 1. 1923: 4 plague rats found.
Straits Settlements:				
Singapore	Dec. 2–8	1	1	
Turkey:				
Constantinople	Dec. 16–22	1	1	
Union of South Africa:				
Cape Province—				
Uitenhage district	Dec. 9–15			Plague rodent found vicinity Haarhoff's kraal farm.
Orange Free State—				
Wonderfontein farm	Dec. 2–8	4		Vicinity of Hoopstad. At Hoopstad, Dec. 9–15, 1923, one death of case previously reported.

[1] Public Health Reports, Dec. 7, 1923, p. 2915.
[a] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received During Week Ended February 8, 1924—Continued.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Arabia:				
Aden	Dec. 16–22	1		Case imported.
Bolivia:				
La Paz	Dec. 1–31	25	5	
Canada:				
Quebec—				
Montreal	Jan. 13–19	1		
Chile:				
Concepcion	Dec. 11–17		1	Nov. 1–30, 1923: Deaths, 7.
Talcahuano				Dec. 22, 1923: Five cases present
Ecuador:				
Quito	Nov. 1–30	167	26	
Guadeloupe (West Indies)				Jan. 16, 1923: Present in interior of island.
Basse Terre	Jan. 12			Present.
Moule	do			Present, vicinity of Point à Pitre.
India				Nov. 18–24, 1923: Cases, 870; deaths, 156.
Madras	Dec. 16–22	7	1	
Rangoon	Dec. 9–15	1		
Iraq:				
Bagdad	Dec. 2–8	11	8	
Java:				
West Java—				
Batavia	Nov. 24–30	10	1	
Mexico:				
Mexico City	Dec. 23–29	5		Including municipalities in Federal district.
Portugal:				
Oporto	Dec. 30–Jan. 5	15	7	
Spain:				
Valencia	Dec. 30–Jan. 5	32	3	
Union of South Africa:				
Cape Province	Dec. 2–8			Outbreaks.
Transvaal—				
Johannesburg	Dec. 9–15	2		

TYPHUS FEVER.

Algeria:				
Algiers	Dec. 1–31	4	2	
Bolivia:				
La Paz	Dec. 1–31	25	3	
Bulgaria:				
Sofia				Nov. 18–Dec. 1, 1923: Paratyphus fever, 13 cases.
Chile:				
Concepcion	Dec. 11–24		3	Nov. 1–30, 1923: Deaths, 3.
China:				
Antung	Dec. 24–30	3		
Ecuador:				
Quito	Nov. 1–30	14	1	
Egypt:				
Alexandria	Dec. 17–23	1		
Cairo	Sept. 24–30	1		
Finland				Dec. 1–15, 1923: Paratyphus fever, cases, 15.
Mexico:				
Mexico City	Dec. 23–29	15		Including municipalities in Federal district.
Norway:				
Stavanger	Dec. 25–31	1		
Spain:				
Madrid	Dec. 1–31		7	
Turkey:				
Constantinople	Dec. 16–29	2	1	
Union of South Africa:				
Cape Province	Dec. 2–8			Outbreaks.
Orange Free State	Dec. 9–15			Do.
Transvaal—				
Johannesburg	Dec. 9–15	1		
Venezuela:				
Maracaibo	Dec. 16–22		1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 29, 1923, to February 1, 1924.[1]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Hongkong	Nov. 18–24	1		
India				Oct. 14–Nov. 17, 1923: Cases, 4,744; deaths, 3,064.
Calcutta	Nov. 11–Dec. 8	41	27	
Madras	Nov. 25–Dec. 15	9	3	
Rangoon	Nov. 11–Dec. 1	2	2	
Siam:				
Bangkok	Nov. 18–24	2		
Turkey:				
Constantinople	Dec. 2–8		1	

PLAGUE.

Azores:				
St. Michael Island	Oct. 20–Nov. 10	9	5	At localities 3 to 9 miles from port of Ponta Delgada.
Bolivia:				
La Paz	Oct. 1–31		3	
Brazil:				
Bahia	Nov. 11–17	1	1	Nov. 25–Dec. 8, 1923: Cases, 2; deaths, 1.
British East Africa:				
Kenya—				
Mombasa	Oct. 14–20	1	1	Infected rats, 2. Dec. 9–15, 1923: Cases, 4; deaths, 2; removed from vessel arrived Dec. 11, 1923.
Nairobi	Nov. 1–21	40		In rural districts, several hundred.
Tanganyika				To Oct. 20, 1923: Cases, 34; deaths, 25.
Do	Nov. 4–24	5		
Uganda	Aug. 1–Oct. 31	734	719	
Canary Islands:				
Las Palmas	Oct. 15–Nov. 15	14	14	
San Juan de la Rambla	Dec. 11	1		Locality 52 km. from Teneriffe.
Ceylon:				
Colombo	Nov. 11–Dec. 8	14	9	Plague rodents, 16.
Ecuador:				
Guayaquil	Nov. 16–Dec. 15	15	6	Rats taken: 35,070; found infected, 91.
Jipijapa	do			Present.
Vino del Milagro	Dec. 1–15	1		
Egypt				Jan. 1–Dec. 13, 1923: Cases, 1,479; deaths, 708.
City—				
Alexandria	Jan. 1–Dec. 13	65	33	Date of last case. Nov. 29, 1923.
Cairo	do	1	1	Date of last case, Mar. 1, 1923.
Port Said	do	51	29	Date of last case, Sept. 10, 1923.
Suez	do	42	23	Date of last case, Dec. 6, 1923.
Hawaii:				
Paauhau				Dec. 14, 1923: One plague rat.
India				Oct. 14–Nov. 17, 1923: Cases, 15,957; deaths, 10,243.
Bombay	Oct. 28–Dec. 8	3	3	
Karachi	Nov. 11–Dec. 22	41	33	
Madras Presidency	Nov. 4–Dec. 15	1,263	774	
Rangoon	Nov. 4–Dec. 8	9	5	
Indo-China:				
Saigon	Oct. 28–Nov. 17	18	6	Including 100 square kilometers in surrounding country.
Iraq:				
Bagdad	Nov. 11–17	1		
Java				Oct. 1–31, 1923: Deaths, 902.
Province—				
Djokjakarta	Oct. 1–31		56	
Kedoe	do		252	
Pekalongan	do		25	
Samarang	do		218	
Soerabaya	do		3	Nov. 11–17, 1923: One case.
Soerakarta	do		348	
Madagascar:				
Tananarive Province	Oct. 1–15	32	28	Bubonic, pneumonic, septicemic.
Tananarive town	do	22	22	Oct. 16–29, 1923: Deaths, 11; European, 2.

[1] From medical officers of the Public Health Service, American consuls, and other sources.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 29, 1923, to February 1, 1924—Continued.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Peru				Nov. 1-30, 1923: Cases, 23; deaths, 18.
Locality—				
Canete	Nov. 1-30	1	1	
Chepen	do	1		
Chiclayo	do	1	1	
Lima (city)	do	15	12	
Lima (country)	do	4	4	
Lurin	do	1		
Portugal:				
Lisbon	Dec. 13-21	7		
Portuguese West Africa:				
Angola—				
Loanda	Oct. 8-28		12	
Siam:				
Bangkok	Nov. 4-17	2	2	
Spain:				
Malaga	Dec. 17	2		
Straits Settlements:				
Singapore	Nov. 11-24	2	2	
Syria:				
Beirut	Nov. 1-Dec. 10	3		
Turkey:				
Constantinople	Dec. 2-15	5	2	
On vessel:				
Ship ——	Dec. 11	4	2	At Mombasa, British East Africa

SMALLPOX.

Algeria:				
Algiers	Nov. 1-30	1		
Belgium:				
Brussels	do	10		
Bolivia:				
La Paz	Oct. 1-Nov. 30	20	10	
Brazil:				
Pernambuco	Nov. 4-Dec. 1	15	3	
Rio de Janeiro	Nov. 18-24	3	1	
Sao Paulo	Sept. 3-9	1		
British East Africa:				
Tanganyika Territory	Sept. 30-Oct. 27	14	1	
Uganda	Sept. 1-30	6	1	
Zanzibar	Sept. 1-Oct. 31	116	18	Sept. 1-30, 1923: In areas 27 miles from town of Zanzibar. Oct. 1-31, 1923: In vicinity, 1 case, 1 death. In Mkokotoni district, 30 cases, 14 deaths reported.
Canada:				
British Columbia—				
Vancouver	Dec. 2-22	7		
Manitoba—				
Winnipeg	Nov. 25-Dec. 29	21	3	
New Brunswick—				
Madawaska County	Dec. 8-15	1		
Ontario—				
Fort William and Port Arthur.	Dec. 16-29	3		Occurring at Fort William.
Quebec—				
Montreal	Nov. 30-Jan. 5	1		
Saskatchewan—				
Regina	Dec. 9-15	1		
Ceylon:				
Colombo	Nov. 11-17	1		Port case.
Chile:				
Concepcion	Oct. 1-31		7	Nov. 12-Dec. 3, 1923: Deaths, 5.
Talcahuano	Nov. 26-Dec. 2	3		
Valparaiso	Dec. 9-15		1	
China:				
Amoy	Nov. 18-Dec. 8			Present.
Chungking	Nov. 4-Dec. 15			Present and endemic.
Foochow	do			Present.
Hongkong	Oct. 28-Dec. 8	459	426	
Manchuria—				
Harbin	Nov. 12-Dec. 9	13		
Nanking	Dec. 2-15			Do.
Shanghai	Dec. 29			Prevalent.
Chosen (Korea):				
Seoul	Nov. 1-30	1		

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 29, 1923, to February 1, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Colombia:				
Buenaventura	Nov. 18–Dec. 15	8		
Ecuador:				
Esmeraldas	Nov. 16–30	4		
Egypt:				
Port Said	Nov. 24–Dec. 2	1		
Esthonia				Nov. 1–30, 1923: Cases, 32.
Greece:				
Saloniki	Oct. 22–Nov. 4		7	
Guadeloupe (West Indies)				Jan. 2, 1924: Present.
Basse Terre	Dec. 18			Present.
Marie Galante	do			Off shore island; present.
Pointe à Pitre	do			Present in vicinity.
India				Oct. 14–Nov. 17, 1923: Cases, 3,675; deaths, 801.
Bombay	Oct. 28–Dec. 8	38	16	
Madras	Nov. 4–Dec. 15	8	2	
Rangoon	Nov. 4–Dec. 8	9	4	
Indo-China:				
City—				
Saigon	Nov. 4–Dec. 1	50	24	Including 100 square kilometers of surrounding country.
Iraq:				
Bagdad	Oct. 24–Nov. 17	14	8	
Jamaica				Nov. 25–Dec. 29, 1923: Cases, 115.
Do				Dec. 30, 1923–Jan. 5, 1924: Cases, 24. (Reported as alastrim.)
Kingston	Nov. 25–Dec. 29	3		
Do	Dec. 30–Jan. 5	2		
Java:				
East Java—				
Soerabaya	Oct. 28–Nov. 10	180	24	
West Java—				
Batavia	Oct. 27–Nov. 23	43	9	
Latvia				Oct. 1–31, 1923: Cases, 3.
Mexico:				
Manzanillo	Dec. 4–10	5	1	
Mexico City	Nov. 25–Dec. 22	32		Including municipalities in Federal District.
Vera Cruz	Nov. 3–Dec. 30		4	
Do	Jan. 6–13		1	
Persia:				
Teheran	Sept. 24–Oct. 23		1	
Poland				Sept. 23–Nov. 3, 1923: Cases, 142; deaths, 15.
Portugal:				
Lisbon	Nov. 11–Dec. 22	19	8	
Oporto	Nov. 25–Dec. 29	39	23	
Siam:				
Bangkok	Oct. 28–Nov. 24	29	17	Nov. 25–Dec. 1, 1923: Epidemic.
Siberia:				
Dauria Station	Oct. 21			Present. Locality on Chita Railway, Manchurian frontier.
Sierra Leone:				
Sherbro District—				
Tagbail	Nov. 1–15	3		
Spain:				
Barcelona	Nov. 15–21		1	
Valencia	Nov. 25–Dec. 29	152	12	
Switzerland:				
Berne	Nov. 18–Dec. 22	12		Corrected.
Syria:				
Aleppo	Nov. 25–Dec. 1	1		In vicinity, at Djisr Choughour.
Damascus	Nov. 16–Dec. 15	4		
Tunis:				
Tunis	Oct. 27–Nov. 2	5	1	
Turkey:				
Constantinople	Nov. 11–Dec. 8	3		
Union of South Africa				Oct. 1–31, 1923: Colored, cases, 41; deaths, 2; white, cases, 3.
Cape Province	Oct. 28–Nov. 24			Outbreaks.
Natal	Oct. 28–Nov. 3			Do.
Orange Free State	Oct. 28–Nov. 24			Do.
Transvaal	Nov. 18–Dec. 1			Do.
Johannesburg	Nov. 25–Dec. 1	1		
Uruguay:				
Montevideo	Oct. 1–31	1		
On vessels:				
S. S. Torres	Jan. 14	1		At New Orleans quarantine station from Tampico, Mexico, via ports. Case in seaman signed on at Galveston, Tex., on outward voyage.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from December 29, 1923, to February 1, 1924—Continued.

SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
On vessels—Continued.				
S. S. Vasari	Dec. 31	1		At Trinidad, West Indies, from Buenos Aires, Argentina. Vessel left Buenos Aires Dec. 15, 1923, for New York, via Santos, Rio de Janeiro, Trinidad, Barbados.

TYPHUS FEVER.

Algeria:				
Algiers	Nov. 1-30	3	1	
Bolivia:				
La Paz	Oct. 1-Nov. 30	18	2	
Bulgaria:				
Sofia				Dec. 2-15, 1923: Paratyphus fever; cases, 4.
Chile:				
Antofagasta	Dec. 2-8	4		
Concepcion	Oct. 1-31		1	
Talcahuano				Dec. 5, 1923: 3 cases under treatment.
Valparaiso	Nov. 25-Dec. 15		29	Dec. 24, 1923: In hospital, 34 cases.
China:				
Antung	Nov. 12-Dec. 9	2		
Chungking	Nov. 18-24			Present.
Egypt:				
Alexandria	Nov. 19-Dec. 9	2		
Cairo	Sept. 10-Oct. 14	26	4	
Esthonia				Nov. 1-30, 1923: Paratyphus fever, cases 8.
Hungary				July 1-Aug. 31, 1923: Cases, 24.
Latvia				Oct. 1-31, 1923: Cases, 12; paratyphus fever, 7; recurrent typhus, 3.
Mexico:				
Mexico City	Nov. 25-Dec. 22	71		Including municipalities in Federal District.
Persia:				
Teheran	Sept. 24-Oct. 23		1	
Poland				Sept. 23-Nov. 3, 1923: Cases, 207; deaths, 24. Recurrent typhus, cases, 22.
Spain:				
Barcelona	Nov. 29-Dec. 12		2	
Turkey:				
Constantinople	Nov. 11-Dec. 15	13		
Union of South Africa				Oct. 1-31, 1923; Colored, 287 cases, 58 deaths; white, 2 cases; total, 289 cases, 58 deaths.
Cape Province				Oct. 1-31, 1923; Colored, cases, 245; deaths, 47.
Do	Oct. 28-Dec. 1			Outbreaks.
Natal				Oct. 1-31, 1923; Colored, cases, 4; deaths, 3.
Do	Oct. 28-Nov. 3			Outbreaks.
Durban	Nov. 18-Dec. 1	73		Cases occurring among native stevedores in the harbor area of the port and confined to one barracks.
Orange Free State				Oct. 1-31, 1923; Colored, cases, 25; deaths, 8.
Transvaal				Oct. 1-31, 1923; Colored, cases, 13.
Do	Oct. 28-Dec. 1			Outbreaks.
Johannesburg	Nov. 11-17	1		
Yugoslavia:				
Croatia—				
Zagreb	Dec. 2-15	3		
Serbia—				
Belgrade	Nov. 25-Dec. 1	1		

YELLOW FEVER.

Brazil:				
Pernambuco City	Nov. 16	3	2	

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